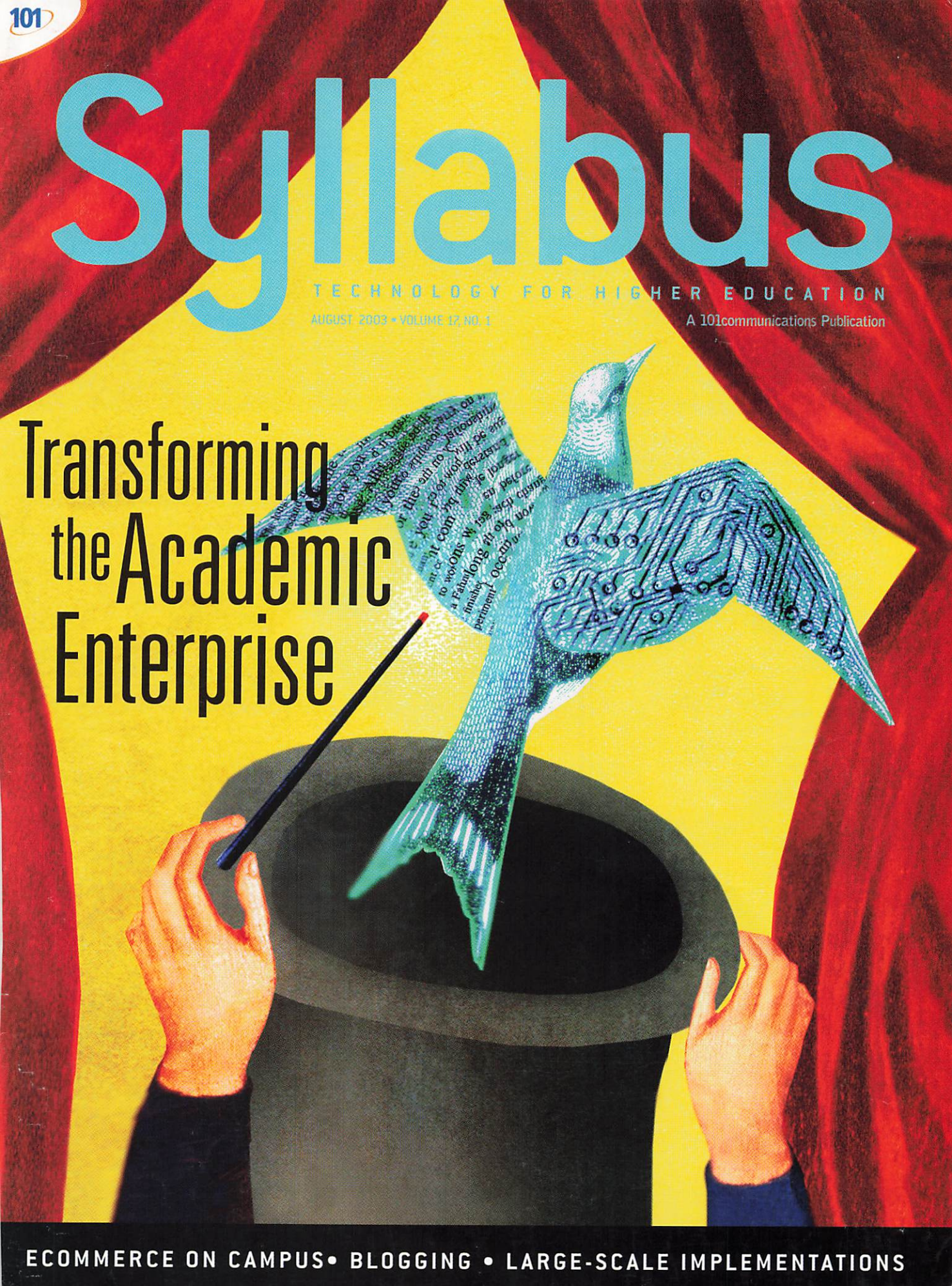
Syllabus

TECHNOLOGY FOR HIGHER EDUCATION

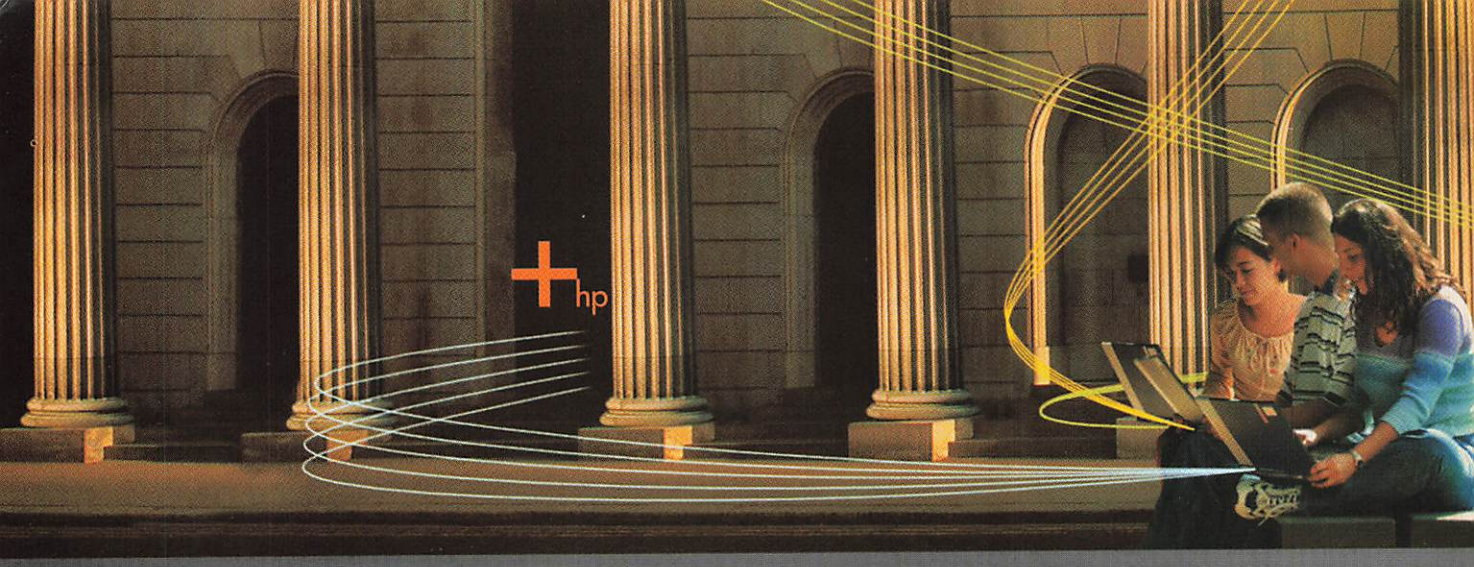
AUGUST 2003 • VOLUME 17 NO. 1

A 101communications Publication

Transforming the Academic Enterprise



ECOMMERCE ON CAMPUS• BLOGGING • LARGE-SCALE IMPLEMENTATIONS



It has stood for hundreds of years. And suddenly, it's mobile.

Only HP has all the solutions to make your campus fully mobile. As even the oldest institutions embrace the newest wireless technologies, a dramatic transformation in education is taking place. But only HP offers the breadth and depth of wireless solutions to make your fully mobile campus a reality. We can provide everything from back-end servers to handhelds, Tablet PCs and Intel® processor-powered notebooks. All with the strong backing of HP service and support. Of course, every campus is different, so HP solutions are flexible, modular and scalable to adapt to your school's needs, today and tomorrow. With the HP Campus Investment Program, only HP offers everything you need for a cost-efficient plan for your campus. Call or log on to our Web site today. And let your wireless education begin.

HP COMPAQ NOTEBOOK NX7000

$1,599 Product number: DL855A#ABA

Lease for $67 per month*

- Intel® Centrino™ mobile technology
- Intel® Pentium® M processor 1.30GHz
- 256MB DDR SDRAM (266MHz)
- 40GB Hard Drive†
- 8X DVD-ROM Drive
- 15.4" WXGA TFT Display
- Integrated IEEE 802.11b Wireless
- Integrated IEEE 1394
- Microsoft® Windows® XP Professional

monitor not included

HP COMPAQ DESKTOP D530 SMALL FORM FACTOR

$699 Product number: DJ656#ABA

Lease for $30 per month*

- Intel® Pentium® 4 processor 2.40GHz
- 128MB DDR PC2700 non ECC
- 40GB ATA/100 5400 rpm HD 1st†
- Microsoft® Windows® XP Pro SP1 US
- PS/2 scroll mouse HP carbonite
- 1.44MB Floppy Drive
- PS/2 keyboard HP carbonite/silver EAK US
- HP Restore Plus! CD Kit
- Norton Antivirus™ 2003 US
- 48X CD-ROM Drive‡
- **Get even more:**
- 15" LCD - HP TFT L1502, add $299

HP ProLiant DL560

$6,957 Product number: 246638-001

Lease for $290 per month*

- Intel® Xeon™ processor MP at 1.50GHz standard (up to four supported)
- 512MB 200MHz (DDR) SDRAM (PC2 100MHz Registered SDRAM Memory with Advanced EEC functionality)–(Standard) to 12GB–(Maximum)
- Two NC7781 PCI-X Gigabit NICs (embedded)
- Smart Array 5i Plus Controller (Dual Channel, Ultra3)
- Integrated Lights-Out (iLO) remote server management embedded
- 293.6GB maximum (with optional hard drives)
- Rack 2U form factor

intel inside centrino™ MOBILE TECHNOLOGY

hp invent

HP recommends Microsoft® Windows® XP Professional for Education.

To find out how easily HP can make your campus mobile, call 1-877-480-HiEd or visit www.hp.com/go/hedsolutions.

Prices shown from HP Public Sector refer to U.S. estimated selling prices. Actual reseller pricing may vary. Prices and availability are subject to change. *Lease products available through Hewlett-Packard Financial Services Corporation (HPFSC) to qualified commercial customers in the U.S. and are subject to credit approval and execution of standard HPFSC documentation. Monthly lease payments are based on 24-month lease term and do not include taxes, fees or shipping charges. Lessee has the option to purchase the equipment at the end of the lease term at its fair market value (FMV). Other fees and restrictions may apply. HPFSC reserves the right to change or cancel this program at any time without notice. †For hard drives, GB=billion bytes. ‡48X CD-ROM Drive data transfer rate is 10,800 Kbps. ©2003 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. Intel, the Intel Inside Logo, Intel Centrino, the Intel Centrino Logo, Intel Xeon, Pentium and Celeron are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries.

Syllabus

Vol. 17, No. 1 Syllabus Press

CONTENTS | AUGUST 2003

COVER STORY PAGE 10

Cover Illustration: Brian Stauffer

FEATURES

10 **Transforming the Academic Enterprise**
A Conversation with Graham Spanier
Penn State University president Graham Spanier talks with *Syllabus* about how pervasive technology is impacting the higher education campus and what these changes mean for the future of academic institutions.

18 **18 Making Enterprise Systems Work for Everyone**
John Webster, Dakota State University
John Webster discusses the important factors and steps involved when making the decision to implement an extensive enterprise system on campus. Find out what your university should be considering before its next large-scale IT project.

22 **Campus Communications and the Wisdom of Blogging**
Sarah Roberts, Duke University
Sarah Roberts explores the new technology of blogging—a form of online journaling—and the potential applications for higher education. Can blogging help foster creativity and increase the feeling of community for on- and off-campus communications?

26 **Building an Access Ramp to Information Technology**
Norman Coombs, Rochester Institute of Technology
Ensuring access to information technology for students with disabilities takes a campuswide effort, including IT staff, administrators, faculty, and students. Norman Coombs considers how each of these groups should work together to create the best and most cost-efficient ways to make sure technology is accessible to all.

30 **Hawaii: Strengthening the Sum of its Parts**
David Lassner, University of Hawaii
The University of Hawaii's new single sign-on portal—which will be online in the fall of 2003—will link all 10 campuses together, providing cohesive communications for its two- and four-year schools. David Lassner details the benefits of the myUH portal and how it will affect the university's constituents.

COLUMNS

7 Trends
Open Source Facing Test; Tablet First Impressions
Phillip D. Long

16 Distance Learning
Distance Learning Consortia: An Assessment
Sally M. Johnstone

17 Digital Tweed
Learning from Amazon.com
Kenneth C. Green

42 Reflections
What To Do Until Your Portal Arrives
Howard Strauss

42

DEPARTMENTS

4 Editor's Note
33 Case Studies
37 Buyer's Guide
40 Advertiser's Index

EDITOR'S NOTE

Mary Grush, Editor

"Technology is no longer isolated in discrete areas," says Graham Spanier, Penn State University's president. Today's pervasive technology affects both individual productivity and campuswide systems, integrates administrative and academic departments, and enables new models of communication and collaboration. In our lead feature interview, "Transforming the Academic Enterprise" (page 10), Dr. Spanier offers a top-level view of how technology is transforming colleges and universities.

Technology change is increasingly felt on an enterprise level, affecting multiple groups. John Webster, a Dakota State veteran of large-scale implementations, recommends consensus building as a tool for decision making. In "Making Enterprise Systems Work for Everyone" (page 18), Webster considers the process of change and why it is important to identify and involve the principals of constituent groups on campus.

Accessibility is another area that can benefit from institution-wide planning efforts. Issues about accessibility have always been present at higher education institutions, but technology offers a chance to plan for universal access, leveling the playing field by designing systems that can be used by all, regardless of abilities. In "Building an Access Ramp to Information Technology" (page 33), Norman Coombs, Rochester Institute of Technology emeritus professor and chief executive officer of EASI, offers his ideas for campuswide efforts as well as resources for planners.

Students, faculty, and staff have growing expectations for effective electronic communication systems, from e-mail to Web-based, campuswide information services. Blogging, or Web logging, is a relatively new trend that has the potential to foster informal and personalized information exchange and build communities both on and off campus. Will blogging be incorporated into teaching and learning systems? Sarah Roberts, supervisor of the Multimedia Project Studio at Duke University, examines this fascinating development in Web communications (see page 22).

Finally, David Lassner, of the University of Hawaii, shares a practical example of large-scale technology implementation. The university is putting in place an integrated student platform that will provide one single sign-on system for 52,000 students, faculty, and administrators at 10 campuses, including two-year community colleges, four-year institutions, and a research university. Read his account on page 30.

I hope that you are making plans to attend Syllabus fall2003, Dec. 8-10. This will be our fifth annual Boston-area conference, and we're excited to be in Cambridge, near MIT and close to downtown Boston. This year's conference will examine technology change on campus and offer a look at the latest classroom innovations, as well as the enterprise applications that are transforming both teaching and administration. For more information on Syllabus2003, see page 19 or visit www.syllabus.com for conference updates.

Enjoy this issue of *Syllabus!*

Mary Grush

Letters to the editor should be addressed to the editor and sent to 101 First Street, #605, Los Altos, CA 94022, or via electronic mail (mgrush@syllabus.com). We reserve the right to edit all submissions. **News and product information** will be considered for publication. Please send all materials to Paul McCloskey. If you are interested in writing for *Syllabus*, please send a brief description of your article idea along with writing samples to the editor at the above address.

Syllabus
TECHNOLOGY FOR HIGHER EDUCATION

EDITOR Mary Grush mgrush@syllabus.com
ASSISTANT EDITOR Wendy Gonchar wgonchar@syllabus.com
CONTRIBUTING EDITOR Paul McCloskey paul.mccloskey@att.net
COLUMNISTS Phillip D. Long, Kenneth C. Green, Sally M. Johnstone, Howard Strauss
ART DIRECTOR Michele Singh
SENIOR GRAPHIC DESIGNER Scott Rovin
GRAPHIC DESIGNERS Bonnie Erickson, Graye Smith
CONTRIBUTORS Norman Coombs, James Fisher, Howell Garner, Rex Hardaway, David Lassner, Sarah Roberts, John Webster
WRITERS Catherine Murphy
FOUNDER John P. Noon

PUBLISHER Mark Sande
MANUFACTURING & DISTRIBUTION DIRECTOR Carlos Gonzalez
MARKETING DIRECTOR Kay Heitzman
CIRCULATION DIRECTOR Phil Tsang
PRODUCTION MANAGER Videssa Djucich
PRODUCTION COORDINATOR Taura Scott

101communications
Enabling Technology Professionals to Succeed

CHAIRMAN Curt Hessler
PRESIDENT & CEO Jeffrey S. Klein
EXECUTIVE VP Steven Crofts
EXECUTIVE VP Gordon Haight
SENIOR VP & CFO Stuart K. Copper
SENIOR VP, CIO & GENERAL COUNSEL Sheryl L. Katz
SENIOR VP, OPERATIONS Bradford C. Stauffer
SENIOR VP HUMAN RESOURCES Michael J. Valenti

WPA Winner Maggie Awards

Syllabus Magazine Advisory Board

DESIGNING FOR LEARNING Judith V. Boettcher
UNIVERSITY OF WASHINGTON Jacqueline Brown
CARNEGIE MELLON UNIVERSITY Robert Cavalier
UNIVERSITY OF WISCONSIN-MADISON Kathy Christoph
DE ANZA COLLEGE William Pritchard

ABP BPA WPA Western Publications Association
www.syllabus.com

Enterprise Intelligence | Supplier Intelligence | Organizational Intelligence | Customer Intelligence | Intelligence Architecture

He wants a degree. You want a lifetime commitment.

Institutions that excel along with their students see the potential of each and every prospect – and understand the value of developing meaningful relationships that can be nurtured over a lifetime. SAS' strategic enrollment management solution gives you accurate and individualized data needed for confident decision making during every life cycle phase – from prospects and students through graduates, alumni, and donors. Programs, services, and communications can be tailored to align strategies, improve recruitment and retention, and promote institutional advancement for a long-term relationship.

Baylor University relies on SAS® software to improve recruitment, ensure a successful enrollment process, and to help students succeed throughout their educational careers. Read Baylor's success story and receive a free white paper on SAS® Strategic Enrollment Management.

Across education, SAS has delivered more than 26 years of leadership in data integrity to more than 3,400 institutions.

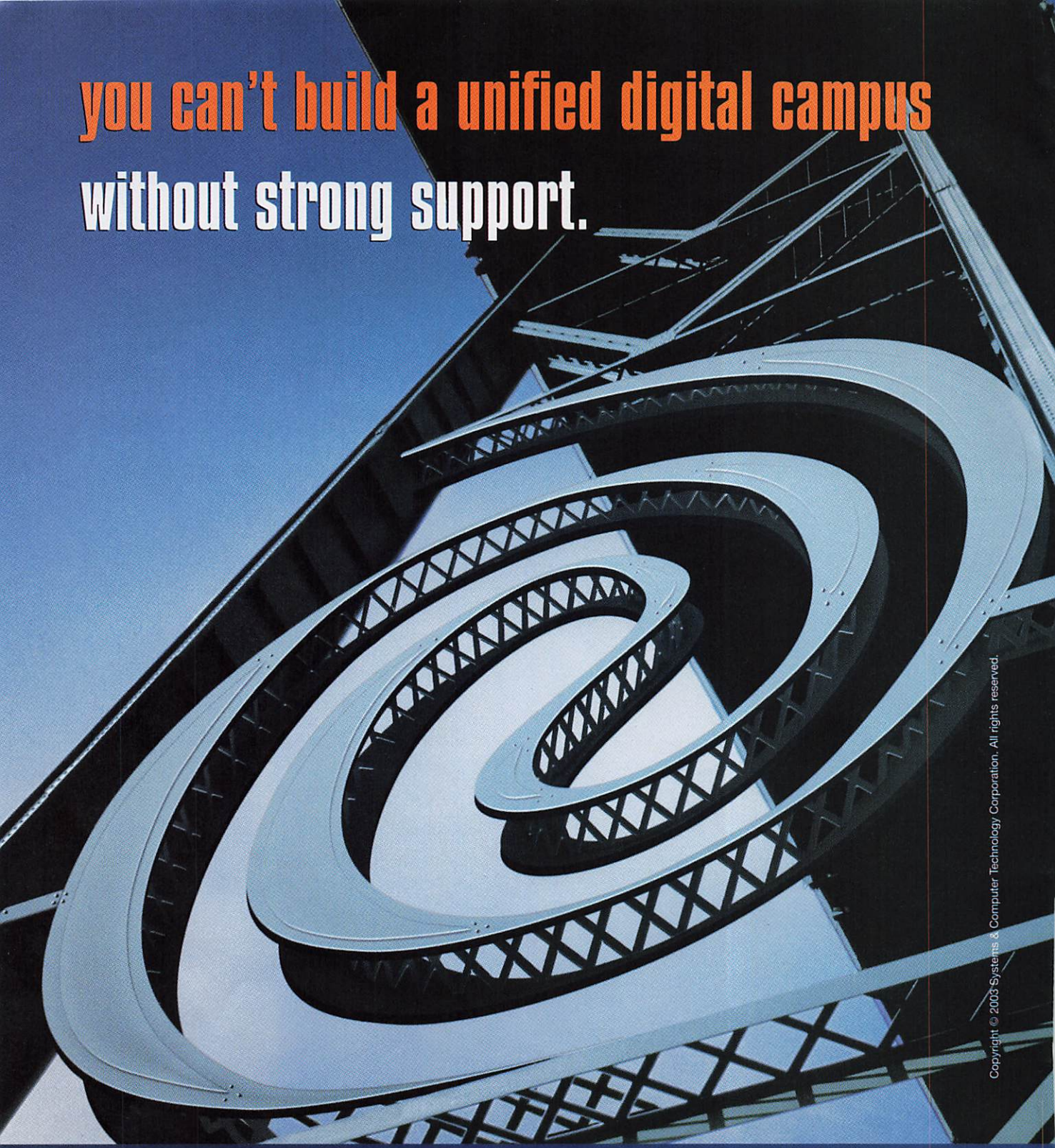
Call us at 1 866 270 5738 or visit

www.sas.com/enroll

The Power to Know.

sas®

SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration. © 2003 SAS Institute Inc. All rights reserved.
228931US.0403



Copyright © 2003 Systems & Computer Technology Corporation. All rights reserved.

Personalized services and information. A superior environment for teaching, learning, research, and achievement. A rock-solid technology infrastructure that meets the unique needs of your institution—while also delivering core services to your key constituencies. All backed by services and support that set the industry standard. This is what you need to create and manage a truly interoperable, connected digital campus. And the one company that brings it all together is SCT. With more than three decades' expertise in higher education, SCT gives you the strongest foundation to build a unified learning community—now and for the long term. For more information, call 800.223.7036, ext. 5246. Or visit www.sct.com.

sct

infinite possibilities.

Phillip D. Long

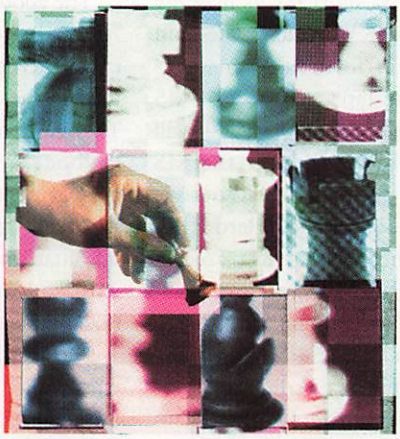
TRENDS

AN INFORMATION RESOURCE OF INTEREST TO EDUCATORS

Open Source Facing Test; Tablet First Impressions

The open source software movement has been thrust into view by a number of events recently. Of course by now everyone has heard of the lawsuits filed by SCO against IBM Corp. and a group of about 1,500 businesses challenging all of them to pay for claimed illegal use of Unix code, and to remove any offending software based on it from commercial distribution.

Either way, the Linux and open source movement would be seriously compromised. But IBM remains unphased by the recent challenge, and many in the Linux/Unix software development community are convinced this is much ado about nothing. Yet it strikes at the heart of one of the concerns mainstream commercial organizations retain about open source software—is it something to safely invest in?



This is a complex legal issue with much of the information needed to ascertain the facts still hidden from view. However, you might find an analysis of the claimed infringements by Eric Raymond and Rob Landley (see "References"). A central component of the suit is expressed in paragraph 57 of the SCO/Caldera complaint: "Through a series of corporate acquisitions, SCO presently owns all right, title and interest in and to Unix and UnixWare operating system source code, software and sublicensing agreements, together with copyrights, additional licensing rights in and to Unix and UnixWare, and claims against all parties breaching such agreements. Through agreements with Unix vendors, SCO controls the right of all Unix vendors to use and distribute Unix."

Its claim is that Unix and Linux are all covered under the same intellectual property patents that SCO bought from AT&T when it was previously Caldera. If these claims were proven to be true, then the Linux software movement's ability to build freely distributable operating system code would be in serious jeopardy. Either they would have to stop using the code, or start paying royalties on its use.

There is much to learn from this sidebar in technology development. Legal actions can serve to obfuscate and decelerate the development of a vital programming community whose ideas we teach in computer courses, implementations we depend on in our daily use of the Web, and on whose intellectual rigor rests significant hope for future new technologies.

The German March Toward Openness

While the legal drama unfolds in the United States, another trend seems to be gathering momentum abroad. After considerable study, the city of Munich, Germany, decided that all government related business documents must be made available to the public in non-proprietary electronic formats. The upshot is that Munich government offices are standardizing around open office productivity software running on open source operating systems (aka Linux and Open Office) instead of proprietary alternatives, that is, over Microsoft Windows/Office.

BRIEFS

- Two online universities held digital commencement exercises: **Strayer Univ. and Capella Univ.**
- **The National Council for Research on Women** reported that the percentage of women enrolled in undergraduate computer science programs has dropped 17 percent in the last 15 years.
- **The Domain Name System,** as the structure of ".com" and ".edu" is known, turned 20 in June. It was first tested at **USC's Information Science Institute.**
- A four-year study by **McGraw-Hill** confirmed that Web technology is helping instructors achieve teaching objectives and has a positive impact on student attitudes and achievement.
- **The University of Calgary** will offer a course in virus writing as part of its security software development program.

For these and other news stories, or to subscribe to our eNewsletters, Syllabus News Update and Syllabus IT Trends, visit www.syllabus.com.

> We handle your I.T. needs, so you can focus on your students' needs.

At CDW•G, we're proud to help you get the I.T. products that help educators. We offer thousands of products from over 1,200 top manufacturers, fast shipping, along with a dedicated account manager who specializes in education. So you always get the right technology for your needs. Then you can focus on more important things, like your students.

It's no secret that Microsoft has fought hard not to lose such contract opportunities. It is a fierce competitor. But the rationale behind the decision made by the city of Munich is different, and perhaps more worrisome to Microsoft than others. Officials in Munich conducted a rigorous analysis of the competing options to their bid for an office suite for government documents, and the Linux/Open Office pair won the comparison. The impact is larger than the 14,000 office computers scattered across the municipal government. It will affect the myriad businesses that must exchange electronic documents with the city.

This isn't an overnight effect. There are relatively good document conversion tools in Open Office, allowing them to export to MS Office. Rather it's the other way around that causes grief—there remain significant challenges to getting MS Office to smoothly import into Open Office. Reviews of Open Office frequently bring it up short for its inability to handle many MS Word templates and other proprietary formatting instructions. (Note: the latest version of MS Office claims to store data in XML. It will be worth watching whether the MS Office XML document structure conforms to recognized, standard XML formats or whether it will reflect a recurrence of the Microsoft version of an otherwise well accepted standard.)

Microsoft has a large war chest available to its sales staff to discount its products just to avoid such outcomes. It has used this twice in the past year to try and capture deals in Europe alone. It doesn't always work. Two years ago Mexico City made local headlines for a similar decision. And one of the more formally reasoned considerations of the issues that ought to be evaluated when a government is deciding how to make information it possesses available to its people comes from a Peruvian lawmaker, Congressman Dr. Edgar David Villanueva Nuñez (see "References"). It's worth a read.

TabletPCs

I'm trying to keep up, just like you. Recently we took delivery of some TabletPCs to look systematically at where this technology might best support teaching, relative to current options. We have some advocates for these devices on campus, and their arguments are sound. Where you teach with large numbers of images, or, the discipline taught is closely associated with graphically rendered methodologies, TabletPCs can be attractive.

The good news is that so far it's not an "either or" choice—the majority of the current crop of TabletPCs offer the pen interface as well as some sort of keyboard. This may be a permanently attached keyboard with a pivoting or folding arrangement to hide it beneath the screen when not in use, or some means of ad hoc attachment that allows you to bring it with you when you want it, effectively making the tablet into a laptop.

I've been trying one out for a while. I wrote much of this column free handedly using the MS Journal software that comes with Pen XP. I'm finishing it up using the

continued on page 41

REFERENCES

Eric Raymond, Rob Landley, OSI Position Paper on the SCO-vs.-IBM Complaint, www.opensource.org/sco-vs-ibm.html, last accessed June 29, 2003.

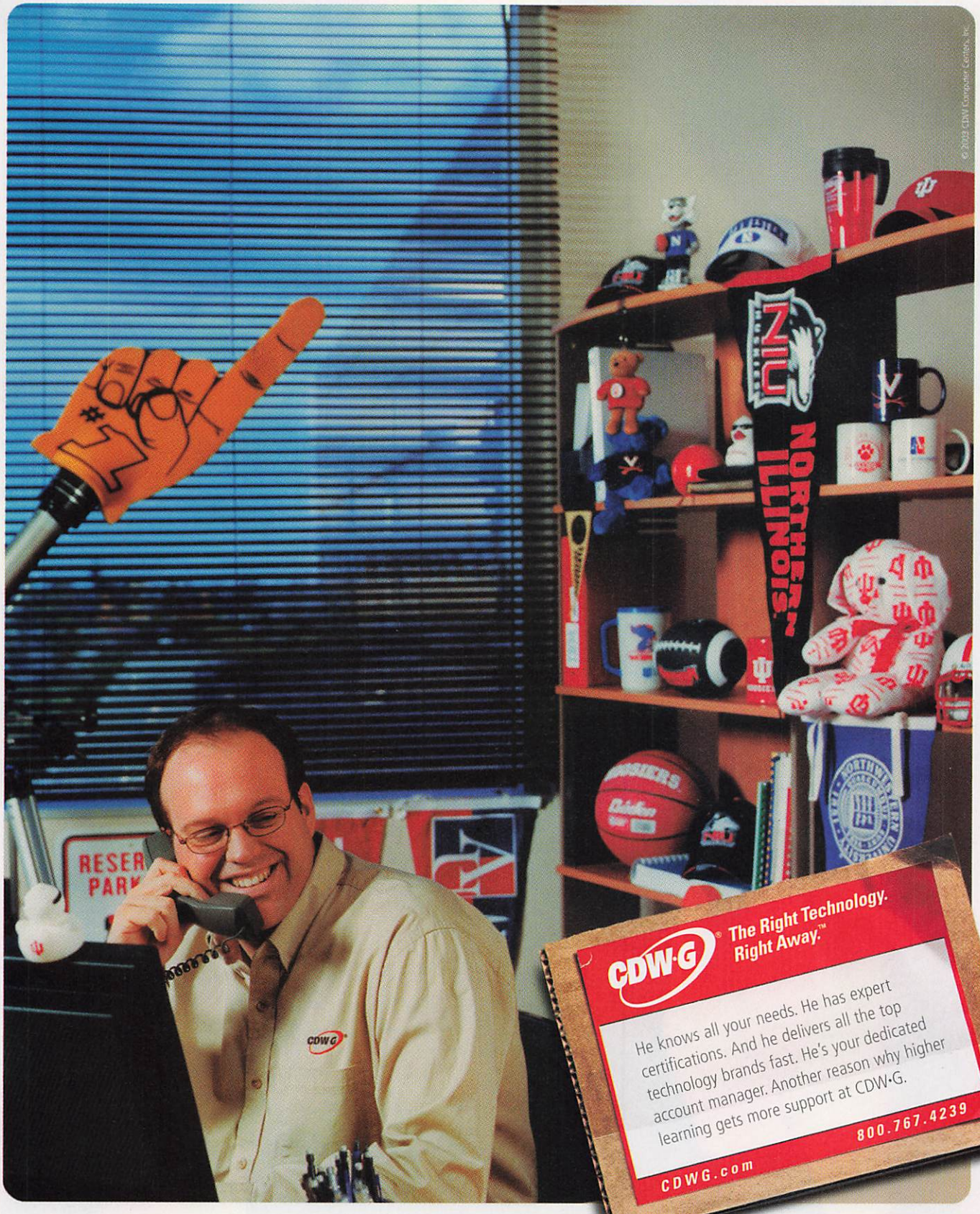
Decides Munich City Hall SPD for Linux http://babelfish.altavista.com/babelfish/tr?url=http%3A//www.heise.de/newsticker/data/anw-26.05.03-004/&lp=de_en.

Munich Goes with Open Source Software, May 28, 2003, http://linuxpr.com/releases/5893.html.

Julia Scheeres, "Mexico City Says Hola to Linux", March 16, 2001, www.wired.com/news/politics/0,1283,42456,00.html.

Peruvian Congressman refutes Microsoft's "Fear, Uncertainty and Doubt" (F.U.D.) concerning free and open source software, www.opensource.org/docs/peru_and_ms.php, last accessed June 29, 2003.

> **2:56 pm.** With his extensive tech training, CDW·G account manager Chris Clark supports higher learning every way he can.


NIU
NORTHERN ILLINOIS
CDW·G
The Right Technology. Right Away.™
He knows all your needs. He has expert certifications. And he delivers all the top technology brands fast. He's your dedicated account manager. Another reason why higher learning gets more support at CDW·G.
800.767.4239
CDWG.com

Graham Spanier offers ***Syllabus*** a president's view of technology integration and discusses the impact of pervasive technology at **Penn State**. An amateur magician in his spare time, this energetic technology champion is working his magic on one of the nation's largest comprehensive state universities.

TRANSFORMING the Academic Enterprise

A CONVERSATION WITH GRAHAM SPANIER

SYLLABUS: As president of Penn State University, you have a very high-level view of technology integration on campus. How do you see technology today, in 2003, impacting and supporting institutional goals, and how does this figure into top-level strategic planning?

GRAHAM SPANIER: I think higher education has been transformed by the deployment of new information technologies. We see it in almost every corner of the university—in our administrative systems, in our Web sites, in our online applications, in distance education, and in resident instruction classrooms. As far as strategic planning, we consider information technology as an integral part of our planning activities. The information technology budget is a rapidly growing area within the university budget, and while it may have slowed down somewhat in the last couple of years, I think it will continue to be a growing part of our budget.

ILLUSTRATION BY BRIAN STAUFFER

S: Does technology impact your planning across the entire enterprise?
GS: Technology is no longer isolated in discrete areas, and part of what we're able to do with more advanced information technologies is to connect areas together that weren't previously connected. I think a very good example is in university libraries. People used to think about libraries in terms of books and journals, but now the library is at the hub of many information technology activities on campus and it is connecting people from their homes, from their offices, and between academic units, allowing people to collaborate in new ways. I also think one of the most important trends in higher education—in fact, it may be the most important trend that nobody is talking about—is the convergence of distance education and resident instruction.

S: So would you say that technology is changing the institution as a whole?
GS: I think so, but it's not as clear as saying that the technology is causing the changes. A lot of this change has been bubbling, and technology is a response to the needs of faculty and staff out there, so it's a two-way street.

S: You mentioned the library. Where at Penn State are you seeing the most technology change—in the realm of academics, or research, or student life, or operations and administration?
GS: I think we're seeing it in all of those areas. It would be hard to rank order them. Certainly researchers have always been on the cutting edge of new applications, and a lot of our most advanced applications are showing up on the research side first. But our registrar, our folks in finance and physical plant, people who oversee our Web site, and our public relations folks are also very much on the cutting edge of using new technologies to get their work done.

S: Can you give me an example of this kind of technology change at Penn State?
GS: One very good example at Penn State is something called eLion. Our nickname is the Nittany Lions so that's where the Lion comes from. This is a system for our students where they can do advising online. They can receive information, look at their transcripts, register for courses, find out what their grades are, even do hypothetical degree audits if they were to change their major or if they wanted to see what the grade point might be in the semester ahead if they got certain combinations of As, Bs, Cs, and Ds.

S: Are the lines blurring between administrative and academic systems? And if so, what are some of the key technologies at the intersection of the two?
GS: Yes, the lines are blurring. Library systems, assistive technologies, eCommerce, Web services, and the course management system are all areas in which we are very active here at Penn State.

S: Do you have an enterprise portal?
GS: Yes, we have a portal service that's available to our students, faculty, and staff. It can be highly customized, with different levels of access depending on what you are doing. If you're a faculty member, you can go in and get your class list and assign your grades. Students can't have access to that, but they can go in and find out what their own grades are. And in most courses now, when a student takes an exam they get their results back electronically after the exam with comparisons to how they fit into the class overall.

S: Are you connecting better with alumni electronically?
GS: Yes, absolutely. If you go to the alumni section of our Web page, you'll find direct links to our alumni association, to things that you can purchase online, our alumni travel program, fundraising, how you make a gift, corporate connections that Penn State Alumni Association has. We have at Penn State about 100,000 of our alumni who receive an e-mail from the university every day, so we have something called the Penn State Newswire that goes to any alumnus who's signed up and they get all the news from the university on a daily basis. We have several specialty newswires. If you're interested in diversity you can sign up for the diversity newswire; you can get the sports newswire; you can get the news coming out of the university in particular areas.

"... part of what we're able to do with more advanced information technologies is to connect areas together that weren't previously connected."

S: Does that make the alumni more involved in the university community?
GS: Yes, they're very aware of what happens; they stay connected. Oftentimes they'll read a news item and then weigh in with me with their opinion. One of the new services we have is called OnLion seminars. It's a free monthly seminar featuring Penn State's faculty who explore various topics of interest to Penn Staters so the alumni can go online and participate in those seminars. That's done in cooperation with Penn State World Campus, which is our virtual distance education system.

S: I know that Penn State World Campus is relatively new compared to your university's long history in distance learning initiatives.
GS: Right. The World Campus is about five years old now, whereas we started correspondence in 1892, which was the year rural free delivery started in the United States.

S: And where are you now with Penn State World Campus?
GS: We're now up to about 10,000 students who are taking courses through the Penn State World Campus,

and these are primarily Web-based courses. The number of students continues to increase on a fairly steep curve. We have about 30 different fields in which someone can get a certificate or a degree, and I think we have about 192 different courses right now.

S: Penn State's main campus is geographically somewhat far from population centers. Is IT helping to keep Penn State's 24 campuses connected to each other and the rest of the world?

GS: We're geographically right in the middle of the state. Some people used to say that Penn State was equally inaccessible from all points. I think we've transcended that, but there's no question that through information technology people all over the world feel Penn State is very greatly connected. Certainly our campuses are connected to each other, but we also have offices in all 67 of Pennsylvania's counties through our Cooperative Extension Service. We have research sites all around the state, so we operate at about 100 different locations altogether around Pennsylvania. But through our World Campus and through the accessibility of our IT systems, our servers, our network, we're as in touch as you could be. Penn State now transmits as many as four million e-mail messages a day. There are very few entities of any kind in the world that have that much e-mail traffic, and that comes from about 110,000 active users.

S: I can tell you that from the outside it certainly feels like Penn State is connected, very well connected to the world, and it sounds like it feels that way from the inside, too.

GS: Yes, it does. I think we're now up to about OC12-level connectivity in our bandwidth, and everybody on campus has a computer. We have very extensive training programs, workshops of every imaginable type done through our Information Technology Services group. So another area that has evolved is the very high level of collaboration between people that we used to consider running the computer networks and the computer systems with those running what we used to think of as the telephone system. Those folks are all now part of the same enterprise and working very closely together.

S: What does the 21st century student look like, and what are their expectations for technology at the university?

GS: Well, they're very good at multitasking and expect all of the services to be available at once. They're going to want to be doing instant messaging while they're looking at e-mail, while they're writing their homework, and while they're listening to music that they have downloaded. So their expectations are high. Today's students are a little impatient and don't want to wait, so they expect to have very high-speed connectivity. And they still assume that we will have public service or public access laboratories that will include software that may have special applications that might be too expensive for them to own individually.

"We can reach more people and educate more students; faculty are able to transform the kind of instruction they provide in their classroom."

S: Can you link technology with accountability in terms of how technology can help achieve the institutional mission?

GS: I think you have to look at IT simply as a tool for getting things done. I don't think a university is necessarily any more or less accountable by having the best IT out there. But there are some things you can do with IT that can help. We have in place some systems, for example, in terms of research accounting and managing budgets, which allow supervisors or research administrators to monitor cash flow and do auditing that they probably would not have been able to do as well in the past, so IT can help there. We in the central administration can monitor at any moment what courses students are registering for, what classes are filling up the most quickly. We can look at this very easily and get the big picture and find out places where we have to deploy more resources, to add more sections, or begin to think about closing something down. Back in the old days you'd have to do a run overnight or over the weekend and look at the printouts and painstakingly go through them—very labor-intensive. IT allows for better use, better accountability and efficiency if you match up what's available to how you do business, and we do quite a bit of that at Penn State.

S: It seems like with technology you have a lot more data available with which to make decisions, but everything is changing so fast ...

GS: In some ways, with all the data I have at my fingertips now I can't even keep up with it all. Right now I'm sitting in front of my computer screen and I have one icon that takes me to the development database—all of our donors—and I can at any given moment see which development officers are having meetings with which prospects today and see their notes on the meetings. I can then look at the alumni database and I have information on all of our alumni. I have the office of administrative systems business database; I can be looking at expenditure flows and how bills are being paid. I can look at the academic information system and see what's happening with courses and student demand. I could just spend my entire day at my desk watching everything that's happening. We're actually at the point in our evolution, I think, where our systems are allowing us to do more than we might

even be inclined to do, but I consider that to be a very good situation.

S: Does technology increase the potential to expand distance learning and extension programs and how do you address these possibilities, while maintaining focus on the four-year residential experience? Are you serving a changing population?

GS: I don't think they're mutually exclusive at all. We don't have a narrowly tailored mission to resident undergraduate students only, so what we're doing in distance learning is important. What we're doing in the cooperative extension and other outreach programs is important for us. The population that we're serving is changing somewhat, it is very diverse, and it's becoming broader—it goes well beyond Pennsylvania now. While a lot of our World Campus enrollments, for example, are in Pennsylvania, we have people enrolled from every state in the U.S. and from about 40 different countries at this point. So the question for us as a state university—where we receive some appropriation for education programs—is if the state cuts our budget, can we continue our outreach activities at the same level that we always have? That's becoming more and more difficult. And programs like the World Campus, we operate on a completely self-support basis. At Penn State we ramp that up very carefully, very slowly, without a lot of hype; and indeed a lot of universities have gotten into that business, have lost a lot of money at it and failed. We did not want to be in that situation.

S: Do you see a pervasiveness of technology now, much more than when you became president of Penn State?

GS: Yes, I think we certainly see more of it now than eight years ago. It creates more transparency—people know what's going on at the university and feel free to weigh in. But what it's really done is it's allowed us to do more with less. We can reach more people and educate more students; faculty are able to transform the kind of instruction they provide in their classroom. They're able to disseminate more information to their students in alternative ways, which allows more of the classroom time for interaction, group projects, and working on things that students wouldn't have had time in the classroom to work on before because they were just sitting there listening to the faculty member lecture.

S: Do you think that technology is enabling the kind of changes that really are going to have people working in different ways than they used to?

GS: Oh, I think so, yes. I remember even as recently as eight years ago people who were diehard opposed to technology taking over their life—now they are doing e-mails in the middle of the night and have to check their e-mail every hour, can't stand to be away from it.

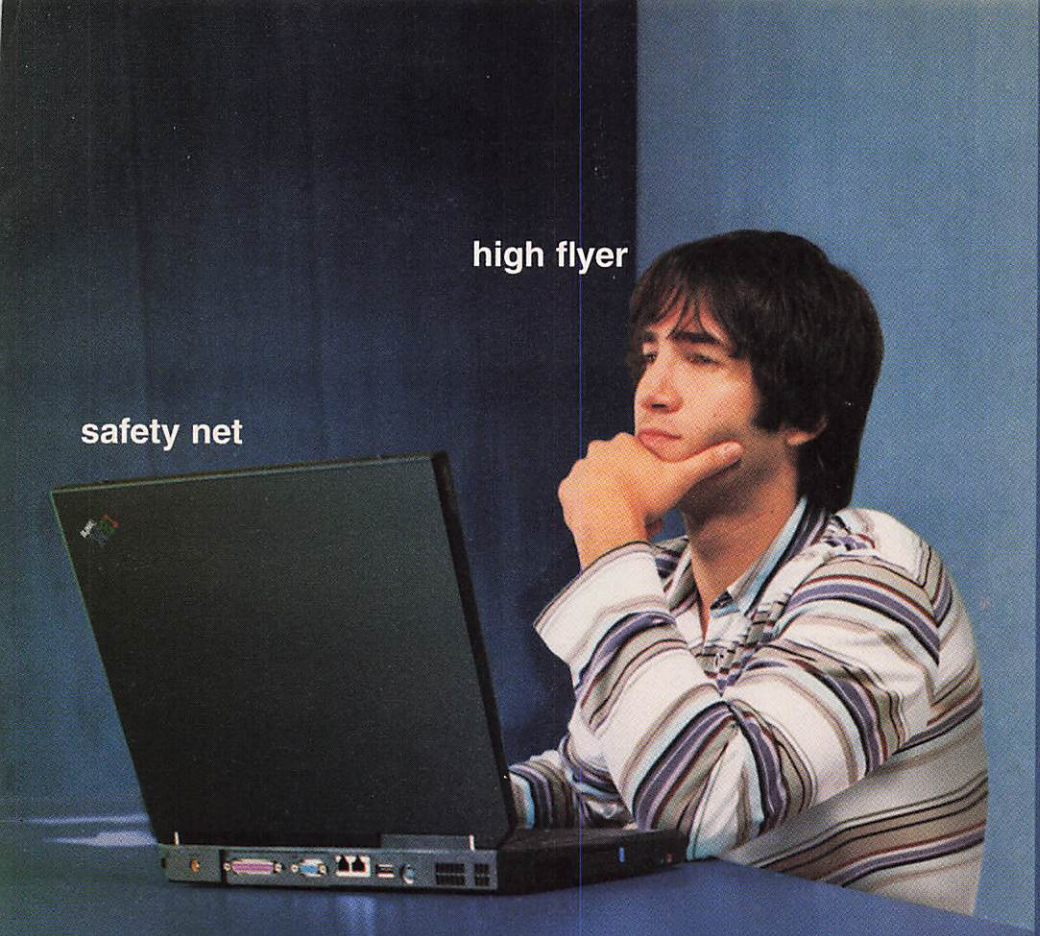
S: We've titled this conversation "Transforming the Academic Enterprise." Looking down the road five or ten years at higher education in general, can you make any predictions about what some of these transformations might be? Will we still recognize our institutions?

GS: Oh, I think we still will recognize our institutions. I think over the next five to ten years the changes won't be quite as dramatic as they have been over the last five to ten years. If you really go back and think about how IT and its uses are different now than they were then, it's quite remarkable. I think we'll continue to see some of those changes, but they won't be quite as dramatic because we've accomplished a lot already; but there will continue to be changes. I think we'll see, for example, changes in the greater deployment of IT in the residential instruction classroom; I think that will be a very important one. I think we will have students living in the dormitories of their residential campuses who will get up in the morning and do some of their classes from their rooms in the residence halls or they'll do quite a bit of their work there but also go into a classroom setting. We'll see that whole continuum of how much of their classroom work is being done outside of the classroom as opposed to inside of the classroom. I think that's going to be an area of significant change. Of course we'll see more deployment of wireless technologies. I think we'll see a growing integration of computers, laptops, PDAs, cellular telephones, and wireless technologies. I think as all of this comes together in a more useful way, we will discover growing educational uses for these technologies, and that will perhaps result in some further transformation. But none of this is going to put your traditional residential colleges and universities out of business. That's what a lot of people think the conclusion of all of this is. I heartily disagree. I think that in the end the technology will become useful tools to make it a more interesting and important experience, but nothing's going to beat the whole idea of 18- to 22-year-olds being in a community with a lot of people like themselves. That's going to continue to be an important part of the traditional educational experience.

S: Are you seeing more of the "lifelong learner" at Penn State—alumni and other learners who may come back after graduation for courses or continuing education programs, maybe for the rest of their lives?

GS: Well, certainly. We see a tremendous amount of that now in terms of our alumni connected to us. What we're also going to see from the nontraditional students is people who may come to campus for a weekend at the beginning of a semester or perhaps an intensive two- or three-day experience; then they're going to go off and do the rest of their course or updating or continuing education activity on their own in an interactive way from a distance; and finally they'll come back at the end of the semester for exams, papers, and presentations. It again goes back to challenging this idea that somehow it's one way or the other, with our focus on either traditional residential students or distance learners. I don't think that's so; I think we're going to see a melding of these and a convergence of future technologies for education.

[***Editor's note:*** *Graham Spanier will give a keynote on Dec. 10 at the Syllabus fall2003 conference in Cambridge, Mass.*]



IBM®

IBM ThinkPad® R40

Distinctive IBM Technologies:

- IBM Embedded Security Subsystem 2.0
- IBM Access Connections — easily adjust network settings with location changes

Additional System Features:

- IBM UltraConnect™ Antenna
- Intel® Centrino™ mobile technology
  - Intel PRO Wireless Network Connection 802.11b[4]
- Microsoft® Windows® XP Professional[5]

Wireless ThinkPad R40 with advanced security and Intel Centrino mobile technology

$1,748* (#27233XU)

Customize Yours:

Linksys Wireless Access Point
(#22P7130) $84

ServicePac® Service Upgrade[6]
4-yr onsite/9x5/Next Business Day Response
(#69P9194) $368

Let students soar with secure, wireless IBM ThinkPad notebooks.

Now you can turn your campus into a wireless learning environment[1] without compromising security. Just choose the IBM ThinkPad® R40 notebook featured here. Its unique security subsystem helps provide added protection to passwords and wireless computing.[2] Plus, students can enjoy reliable, wireless access to the Internet[3] and school network, thanks to the outstanding reception offered by in-display, dual antennas. So they can research, collaborate on assignments and go wherever their imaginations take them. For the ultimate wireless experience, this ThinkPad R40 also features new Intel® Centrino™ mobile technology. Powerful, secure, wireless solutions from IBM. There's never been a better time to take higher education, well, higher. **think possibilities**

intel inside centrino MOBILE TECHNOLOGY

1 866 426-7220 | ibm.com/shop/edu/g196

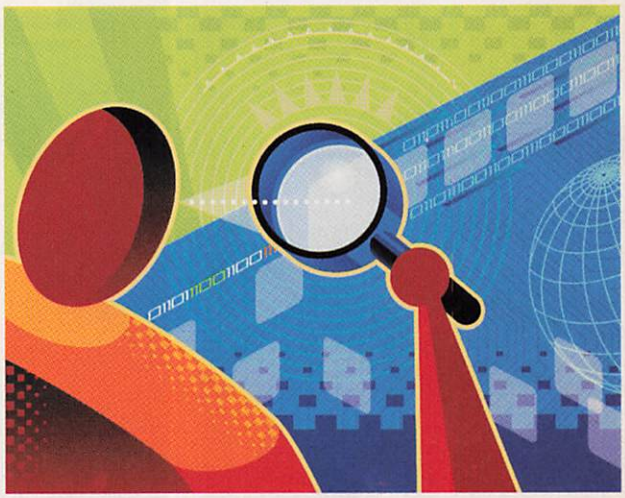
IBM recommends Microsoft® Windows® XP Professional for Education.

Warranty Information: For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12195, RTP, NC 27709, Attn: Dept. JDJA/B203. IBM makes no representations or warranties regarding third-party products or services.*Prices reflect an 8% education discount off IBM Web prices; discount levels may vary. Reseller prices may vary. [1]Requires compatible wireless-enabled options, sold separately. [2]Requires IBM security software download. [3]Requires Internet access account; not included. [4]Based on IEEE 802.11b. This wireless LAN product has been designed to permit legal operation worldwide in regions in which it is approved. Operation on channels 12-14 is not permitted in all regulatory regions of the world. Consequently, the wireless LAN feature is limited to operate on channels 1-11 and will not support channels 12, 13 and 14.This product has been tested and certified interoperable by the Wireless Ethernet Compatibility Alliance and is authorized to carry the Wi-Fi logo. [5]Some software may differ from its retail version (if available) and may not include user manuals or all program functionality. Software license agreements may apply. [6]These services are available for machines normally used for business, professional or trade purposes, rather than personal, family or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response-time objectives and are not guarantees. A service technician is scheduled to arrive at your location within two or four business hours or the next business day (depending on service) after remote problem determination is completed. For the 9x5x4-hour service, calls dispatched after 1:00 p.m. local time, you can expect the service technician to arrive by the morning of the next business day. For noncritical service requests, a service technician will arrive by the end of the following business day. If the machine problem turns out to be a Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. External peripherals, such as racks, tape drives and channel controllers, require their own, separate service coverage; they are not covered under the attached machine. Service activation is required immediately following purchase. For ThinkPad notebooks requiring LCD or other component replacement, IBM may choose to perform service at the depot repair center. For failing non-IBM components, customer must provide replacement part unless IBM has a Technical Support Agreement with the manufacturer. Service does not cover accessories, supply items and certain parts such as batteries, frames and covers. All offers subject to availability. IBM reserves the right to alter product offerings and specifications at any time, without notice. IBM is not responsible for photographic or typographic errors. IBM, the IBM logo, ServicePac, ThinkPad and UltraConnect are registered trademarks or trademarks of IBM Corporation in the U.S. and other countries. Intel, Intel Inside, the Intel Inside logo, Intel Centrino and the Intel Centrino logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation. Other company, product and service names may be trademarks or service marks of others. © 2003 IBM Corp. All rights reserved.

Sally M. Johnstone

DISTANCE LEARNING

Distance Learning Consortia: An Assessment



Over the summer a couple of interesting reports on distance learning issues were released: The massive U.S. Department of Education survey of the 4,130 institutions eligible to offer federal financial aid; and a more modest study on statewide virtual universities and colleges sponsored by the State Higher Education Executive Officers and the Western Cooperative for Educational Telecommunications.

The Department of Education study reveals that almost 90 percent of public colleges and universities offered electronic distance learning in the 2000-2001 academic year, when the study was conducted. About 60 percent of these distance learning-offering institutions were participating in a consortium for distance learning. Of these, 75 percent were participating in state- or system-level consortia.

The study on virtual schools, conducted by Rhonda Epper and Myk Garn, looks behind these numbers to uncover why those statewide consortia were formed and what they are doing. The authors discovered 61 different statewide or system-wide consortia assisting their constituent colleges and universities in distance learning.

Each consortium was developed in the context of specific needs defined by policy-makers in each of the states involved. The original goals reported by the leaders of these consortia were to increase access to higher education, especially to under-served populations, providing statewide leadership in developing new distance learning programs, and reducing costs for their state.

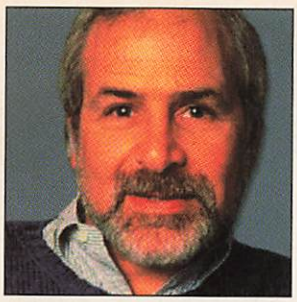
The goal of reducing costs had different interpretations. For higher education, it meant reducing the duplication of resources from campus to campus. So, some of the consortia used financial incentives to encourage campuses to work together to produce distance learning courses. All of the campuses in the state could then use the same distance learning course materials.

Other consortia focused on centralized services to distance learning faculty. Still, others tried to focus on services to students—these consortia created centralized Web sites to which students could go to find all the distance learning courses offered by all the schools in the state or the system. Some even created common registration and student financial aid forms, saving students the chore of filling out different applications each time they registered for a course from a different school listed on the Web site.

Many of the policy-makers who originally funded these statewide consortia expected the overall costs for higher education to be reduced. Perhaps in part as a response to this inconsistent way of looking at costs, the goals of the consortia have shifted over the last few years. As Epper & Garn discovered, the current goals talk more about increasing higher education efficiency and relevance to state needs, increasing communication and collaboration, providing for a better educated workforce, and increasing economic development.

Though Epper & Garn did not study the activity of regional virtual colleges and universities, they did note that the number of statewide organizations increased precipitously beginning in 1996. While it's true that Web-based technologies for distance learning were emerging during that time, it's more likely that the precipitating event was the national dialogue on virtual institutions sparked by the formation of the Western Governors University (WGU) in 1995 and 1996.

Sally Johnstone (sjohnstone@wiche.edu) *is the founding director of WCET and serves on advisory groups for state, national, and international organizations to help plan and evaluate eLearning projects.*



Kenneth C. Green

DIGITAL TWEED

Learning from Amazon.com

August on campus. The dog days of summer, the countdown till opening. At many large residential institutions, the summer months are marked by visiting hordes of new (eager, anxious, and apprehensive) college freshmen and their parents. They come to campus for summer orientation, a 24- to 48-hour "meet-and-greet" that involves ID cards, information sessions, initial meetings with advisors, and course registration.

The summer weeks leading into the first days of fall classes are also when entering students frequently have their first experience with the campus Web site as a college resource. Although freshmen have often been to the Web as part of the admissions experience, an official user ID and password provide access to a rich array of digital content and campus services.

For many institutions, portal services are a key component of the campus IT strategy for campus services. A growing number of colleges and universities have (or expect to have) portals up and running for fall 2003: data from the 2002 Campus Computing Survey indicate that about one-fifth of American colleges had a working portal as of fall 2002, while another fifth expected their portal to be installed by fall 2003.

Yet even as more campuses install or upgrade portals and offer more and better Web-based services (online course registration, transcripts, course reserves, fee payments, student and campus calendar, etc.), it is increasingly clear that online campus services often lag behind the quality of Web-based services and experiences offered by Amazon, Abercrombie, AARP, and other Web sites that serve students, ages 17 to 67.

Consider Amazon.com: A very intelligent Web site, Amazon gets smarter about me each time I visit. The Amazon home page customizes information and resources based on my past visits. A tab at the top of the Amazon home page is labeled "Kenneth's Store." Amazon offers recommendations based on my prior purchases ("Hello Kenneth C. Green"), and tailors its *New for You* and *Message Center* for just me, Kenneth Green. And although there must be hundreds (maybe thousands) of Kenneth Greens in the Amazon database, somehow they manage to present these offerings just for me, Kenneth Green of Campus Computing.

Imagine Amazon as the contractor for the Acme College portal. As an Acme student, I begin my day at the Acme portal to check my e-mail and class schedule. Designed and managed by Amazon, the Acme College portal would be laden with information about campus issues and resources. But it would also be customized just for me, Kenneth Green, an Acme College student.

The Amazon/Acme college portal, *My AAP*, would monitor my progress to degree, tracking the classes I need to complete my distribution, major, and minor requirements. Additionally, *My AAP* would notify me that the deadline for class registration for next term is just 48 hours away. *My AAP* would warn me that there are just four seats left in the statistics class I have been avoiding for the past year. (It might even create an auction for those last four seats!)

My AAP would tell me that 85 percent of the students in my neurophysiology class have already accessed the online readings for the Wednesday seminar. (And *My AAP* might aggregate student comments about which articles were the most informative and what issues might appear on the midterm!) *My AAP* would encourage me to attend today's brown-bag lunch sponsored by the Economics Department, reminding me that my macroeconomics professor and the visiting speaker were college roommates.

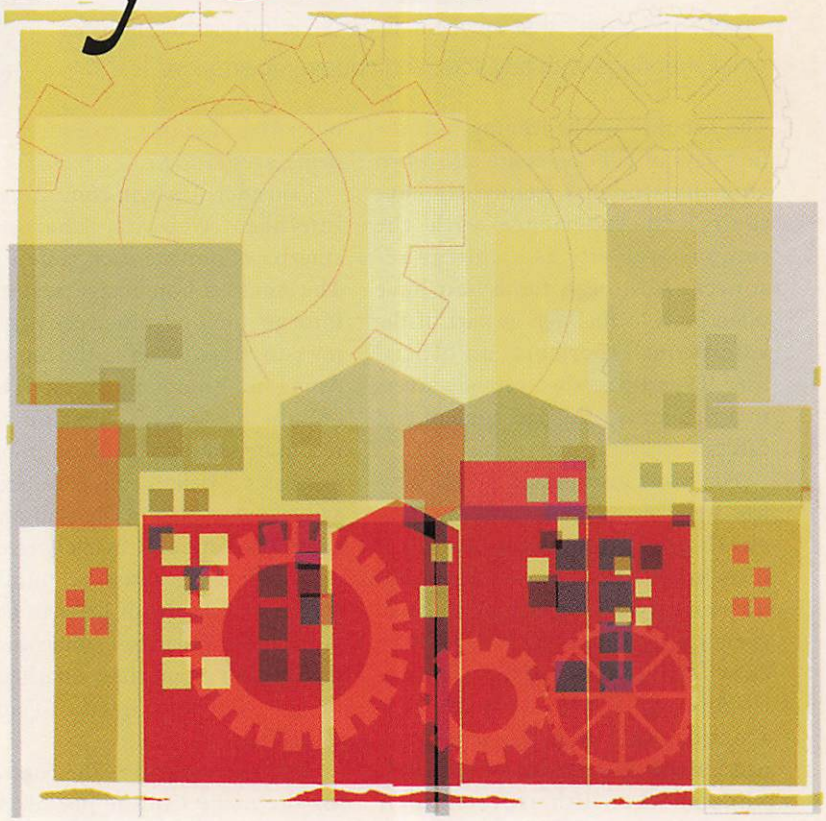
Additionally, *My AAP* would provide easy access to my campus financial accounts, library account, and current transcript, plus book lists

continued on page 32

Illustrated by Mark Betcher

Making Enterprise Systems Work for Everyone

By John Webster,
Dakota State University



No matter how small or large the campus, sizeable IT projects can significantly challenge today's college leaders. Successfully implementing and supporting a large IT endeavor, such as a campus enterprise system, is daunting enough; when you toss declining budgets, reduced staff, and greater internal and external accountability into the fray, the challenge becomes even more overwhelming.

Many higher education administrators have argued against developing an enterprise system during the current economic climate. They would sooner fold up their tents and wait for budgets to improve before embarking on such a challenging endeavor.

But to visionaries, this period is pure opportunity, ripe with possibilities. If college and university visionaries can bring the campus administrative and IT decision makers together to build internal consensus for important IT projects, they will find that this period provides the chance for tremendous growth and development at significant cost savings. Additionally, leveraging these opportunities to build capacity and services can yield tremendous competitive advantages now, as well as strategic positioning for the future when things improve. Finally, waiting for better conditions to begin these projects denies the reality that today, more than ever, organizations need systems to support the growing operations of the campus—from administering human resources, handling student records, and managing financial affairs, to teaching in the classroom.

Internet Architecture

One issue that hinders campuses from executing new IT projects is a lack of understanding of pure Internet architecture. Until recently, organizations—higher education and otherwise—were forced to limit the scope of their IT

Syllabus fall2003

5th Annual Boston Area Education Technology Conference

December 8 - 10, 2003

Hyatt Regency Cambridge

Cambridge, MA

SAVE THE DATE!

Technology Transformations: Understanding Change on the 21st Century Campus

Syllabus returns to the Boston area with a conference program designed to explore the transformative effects of technology change at higher education institutions.

Join campus technology leaders as they examine how information technology supports enterprise goals along with the institutional mission of teaching, learning, and research.

Featured Speakers

William J. Mitchell, Dean, School of Architecture and Planning at MIT and Head, Media Arts and Sciences Program, MIT Media Lab will re-examine notions of the classroom as he reviews how designs of learning spaces have changed over time and suggests new forms and functions for places of learning.

Graham Spanier, Ph.D., President, Penn State University will offer his perspective of technology change at a major state university. Dr. Spanier has guided Penn State through eight years of far-reaching technology change, including the establishment of Penn State World Campus, the university's distance education initiative.

Howard Strauss, Manager of Technology Strategy and Outreach, Princeton University and *Syllabus* columnist, will consider teaching and learning technologies in the year 2015 in an effort to prepare us for the next big things in technology on campus.

Conference Tracks

- Teaching with Technology
- New Technologies & Trends
- Interactive Media
- IT Implementation & Support
- Strategic Planning/Administrative Issues

101communications

FOR CONFERENCE UPDATES AND REGISTRATION, VISIT WWW.SYLLABUS.COM/FALL2003

services to "mission-critical" areas, primarily due to networking and physical infrastructure constraints. However, with the advent of Internet-deployed or Web-based applications, schools can broaden their services to meet demand both on and off campus, making this the era of anytime, anywhere, anybody technology.

Prior to this era, schools could justly view themselves as somewhat immune to demands for better access to "real-time" data. But now, in addition to providing mission-critical operations for administrative functions, schools must consider their students' cravings for access to accurate class schedules and grade reports. In addition, faculty members seek new tools for teaching and research, and staff desire self-service access to human resource services. Pure Internet architecture is the key to enabling this real-time access to information.

Hosting and Consulting Services

If an Internet-enabled architecture is not enough to rally schools to move forward, the option of a fixed-cost IT solution might be the answer. In the past, negative press has been the reward for higher ed IT projects that exceeded budgets and schedules. While flawed implementations may have been prevalent yesterday, today's schools can turn to external vendors that will deliver services to their campus for a fixed sum. In fact, many institutions are realizing the benefits of using a single vendor for both the IT applications and for the implementation of those applications. Such services offer experts with both technology and field experience who can help speed implementations and reduce the need for system customization.

Consensus Building and Project Champions

With all these possibilities, one might believe that campuses are lining up to take advantage of these external resources, but that is far from the case. In reality, transforming a campus from a mission-critical operation to a full-service operational organization is not easy. Since this metamorphosis will touch and change the entire campus, involving key groups and university leaders is important. This involvement can best be described as a *consensus decision-making process* wherein the principals of a campus—academics, students, staff, and administration—agree to this new vision of services.

Identifying the Principals

Consensus decision making relies on representing the needs of all the principals. As you enter into this process, identifying the principal players becomes critical for several reasons. First, you will reach critical mass before you run out of interested parties. Therefore, properly selecting five to ten principal team members to work on an IT project is paramount. From my experience, the principals include the President, CIO, VP Finance, VP Academic Affairs, and faculty members. In a perfect world, students should also be included.

Realizing the apparent administrative overload of this mix, it is clear that without the complete trust, buy-in, and unconditional support of these players, IT modernization projects will die on the vine. However, this is not to imply that these projects are driven from the top down—quite the opposite. Support must begin at the grassroots level with the development of curricular plans, faculty expertise, experimental classes, and industry support. If these are not accomplished, it is impossible to clearly and honestly address the plethora of questions that will be asked of the project before it gains administrative support. Consensus decision making begins locally and only when core support is developed should it be moved across campus.

If consensus decision making is a challenge on your campus, a successful initiative for improving mission-critical services can be launched from the administrative side of the campus. Take the case of student administrative software. A campus could select PeopleSoft Inc. or Datatel Inc., both of which offer such products. Keep in mind that whatever your choice of vendor, you will undoubtedly have internal supporters and detractors. But the bottom line is that this will be a mission-critical operation, and all parties will be eventually relegated to using the applications, no matter whom the vendor. These projects are needed by everybody and are essential for everyone to perform their function. Therefore, these projects are easily mandated and are often rolled out with surprising success. Besides, any IT modernization will be a vast improvement to an institution's antiquated legacy systems.

... it is clear that without the complete trust, buy-in, and unconditional support of these players, IT modernization projects will die on the vine.

Assessing Needs

Making an accurate assessment of the principals' needs will help determine whether a project consensus can be reached. However, making those assessments can be an elusive process. Specifically, determining decision criteria, such as return on investment (ROI), can be challenging as "ROI" means different things to different principals. In the case of administrators, ROI may include reviewing mutually exclusive projects in isolation to determine which is the better investment, and relying on that as the benchmark for decision making. On the other hand, faculty might gauge ROI based on the impact of IT use in the classroom or the number of internships secured by students because of their experience with the applications. A vendor might use the metric of new prospects as an expression of ROI. Any number of these needs can play a critical role in gaining the principals' consensus for the project. Determining which needs are key determiners for

your administration and the other principals will help you work with each party as you step through the IT modernization process.

Vendor Selection

When one reaches consensus to move forward with an IT project, vendor selection becomes the next issue. A college administration often leaves this process to those who manage the IT operations of the campus. However, this approach is nearsighted in that it fails to recognize the body of expertise and understanding that the academic side of the house brings to the table. Further, it fails to recognize the teaching potential of a new IT project.

Decision makers should consider the academic promise of a new enterprise system, looking beyond using new IT for strictly administrative purposes. Many schools are integrating enterprise technology into the classroom, helping business school students win hands-on experience with real-world technology. What better educational opportunity exists than to build a teaching sandbox for academics using the same technology employed by the campus? Academics working in concert with administrative IT can produce limitless learning opportunities for students and faculty alike. I am consistently shocked at the number of academic departments forced to duplicate an existing administrative IT project for classroom use.

An IT director's decision to go with a particular platform he or she may prefer—without consulting with academics—may run counter to the curriculum being taught. Therefore, excluding academics from the vendor selection process challenges the validity of faculty expertise and may deny internship and employment opportunities for students. Additionally, it forms barriers and riffs to developing mutually beneficial links between academics and IT. We eliminated this flawed decision-making process on our campus by keeping the administration involved in academics.

From my experience, relationship development with industry needs to be managed by the academic side of the institution, working in concert with the development office. The outcomes of an industry relationship will primarily benefit the academic principals. Benefits can include scholarships, internships (student and faculty), employment, curriculum development, and other gifts.

Vendors and Shared Vision

The first and only rule to vendor selection is to find a provider that feels good to you. During the course of your provider relationship, you will explore visions and synergistic opportunities, and you look to vendors for resources and expertise. The vendor that you can *talk to* is the one who will most likely work with you to develop and realize your technology vision. For me, it began with a phone call to PeopleSoft to find out about its industry-academic partnership, On Campus. That fledgling relationship has grown into a flourishing, symbiotic partnership. As I look back, PeopleSoft has allowed me to think big and then build those dreams with unwavering support. Along the way, we worked together as a team with industry partners such as Mutual of Omaha to create and implement a vision around enterprise systems. I made that initial phone call not knowing the ins and outs of corporate/academic relationships. Today, I know that both our institution and our solutions provider are striving for the same thing—the opportunity to work together on projects. No matter which vendor you choose, talk to them, and partner with them.

Visioning—Costs

Finally, the reality of visioning and dream building is that they take time and come with certain costs. To build a successful, sustainable IT project, one must allocate enough time for research, training, development, deployment, understanding, and inculcation into the culture. Entering such a project with a short timeline is a recipe for failure, as is starting a project with no sources of revenue to support your vision. As with all projects, the issue of cost must be considered throughout.

Provided appropriate time is allocated, real resource costs can be factored over time and secured through any number of avenues, such as course release time, summer support, curriculum and special project grants, corporate sponsorships, and others.

Increasing Harmony

In reality, even in an era of economic tightening, visionaries believe opportunities abound for manifesting IT visions at colleges and universities. Further, contrary to what some believe, this is the time to move forward with the expansion of campuswide IT services, leveraging new technologies to launch these projects. This can be accomplished by using the consensus decision-making process, beginning with building a grassroots coalition within academics, assessing the principals' needs, and partnering with industry, before going to administrative principals for their buy-in.

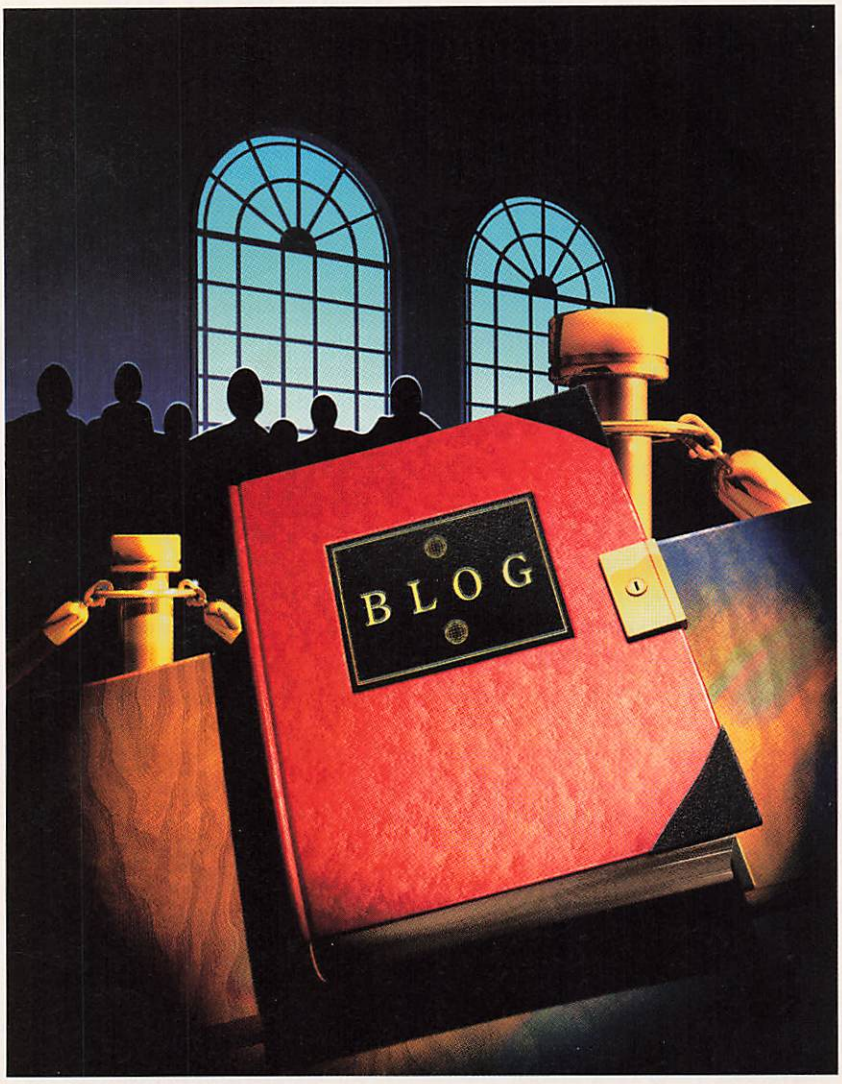
Once the administration is onboard, selecting a vendor should be a mutually beneficial process between academics and IT. Finally, allotting adequate time to grow the project and secure diverse funding will make the implementation process less stressful for all parties. While this is no guarantee of the long-term success of a project, following this process can increase harmony on campus and can mean big returns for a school in the short and long term.

... relationship development with industry needs to be managed by the academic side of the institution, working in concert with the development office.

John Webster (John.Webster@dsu.edu) is the PeopleSoft programs director at Dakota State University.

CAMPUS COMMUNICATIONS & THE WISDOM OF BLOGGING

The advent of "blogging"—online journaling—has breathed new life into the Web. A contraction of the term "Web logging," blogging can best be described as a form of micropublishing. Featuring no or very low start-up costs, few basic infrastructure requirements, and ease-of-use, it has enabled users to publish their thoughts and ideas without barriers.



Illustrated by Ryan Etter

By Sarah Roberts, Duke University

In a very short time, blogging has moved beyond a niche activity for the hyper-extroverted to becoming the backbone of a new Internet communications movement. Although often deeply individualized, Web logging has revitalized the idea of online communities: many blogs have moved from obscurity to having a large and devoted readership—many blogging sites enable people to link their blog to other blog clusters, based on topic and the interests of the authors.

MCP MAGAZINE'S

TECHMENTOR

CONFERENCE & EXHIBITION

September 2–6, 2003
Manchester Grand Hyatt
San Diego

LEARN BY DOING!

Upgrade your skills to Windows Server 2003

If you learn best by doing and you currently possess a Windows 2000 MCSE or MCSA, *MCP Magazine*'s TechMentor Conference is offering a **NEW** workshop that gives you the fastest way to upgrade your skills to Windows Server 2003. This 2-day MCT-led workshop is filled with scenario-based labs that will provide you with the knowledge and skills you'll need for administering a Windows Server 2003 network.

What you'll experience:

- Lab-centric format has you learn by doing and exploring
- Interactive, scenario-based labs have you solve common IT problems
- Resource Toolbox contains task-specific, guided activities and procedures that you can use on the job
- Customizable scripts that you can use to automate your job tasks
- Security content and best practices approved by Microsoft's Trustworthy Computing Group
- Includes all the software you need to practice hands-on exercises and labs
- Directly supports MCP Exam 70-292
- Led by Laura Robinson, Microsoft Certified Trainer

Class size is limited. Register today!

For conference and registration information visit: TechMentorEvents.com/sandiego

101communications

Marketing Code:AUG160

Presented by:

MICROSOFT Certified Professional Magazine

Blogging has also transcended its first early use as a simple online diary. Enterprising alternative news outlets have expanded the concept by turning to Web logs to reach their audiences, easily bypassing mainstream corporate media. Family members use the software to keep in touch with each other. Musicians chronicle their tours for fans and press. Software developers document the development process of popular applications and solicit feedback from their user base.

Blogs in Academe

What, then, is the potential for blogs in higher education? Certainly, offering students space for creating personal content and commentary is the primary application. But the number of uses for blogs are limitless. As a tool for extending learning and encouraging communication and community, blogs are expertly designed to seamlessly integrate the endeavors of many students and faculty.

Consider the undergraduate year-abroad experience, traditionally undertaken during a student's junior year. What if students could have a place to chronicle their experiences in these different cultures and countries? A homepage for all active blogs by students abroad could be created, featuring the most recent entries and breakdowns by class, year, program, or country of study. Students could use the blogs to reflect upon their experiences, to directly address family and friends back home, or as part of an assignment. Media files in their blogs, such as images, audio or video culled from their experiences, could also be included.

Although those participating in a study abroad program become immersed in a range of different cultures, a blog site could create a sense of community among those away from home. Students might find reassurance and enjoyment in communicating with and reading chronicles of others going through the same type of experience. The nature of Web publishing means that the site would always be up-to-date, and that students would be unhindered by political borders when publishing their thoughts.

In other arenas, blogs could be used to continue particularly lively class discussions cut short by an in-class schedule. Students could further their arguments with links to other information and evidence to support their positions. The online discussion could also allow more timid members of the class or those more comfortable expressing themselves in writing another venue for joining in the discussion.

Researchers working across time zones and at different universities can use blogs to meet, update, brainstorm, and archive ideas and documents. Using a blog package's search engine, they can retrieve past postings, which might yield new analytic connections or relevance.

In the pedagogical realm, the uses of blogs are only limited by the imagination. For instance, campus writing centers could partner with academic departments and IT organizations to encourage and develop the writing skills of undergraduates. The site would likely be of interest to the greater campus community, as well, as

Avoid Bogging Down in Blogs

Blogs are by their nature fairly easy to set up, with minimal risk of getting hung up in installation or application integration.

The low overhead, low-tech nature of blogs means that most every campus can put a blog site into production quickly and easily. All that is needed to get started is commonplace technology. That might be an Apache-based Web server, standard software packages (e.g. Perl) installed, and support people with rudimentary HTML knowledge. Depending on the needs of the users, the choice of blogging package, and the time and personnel that can be devoted to set-up, blog-based sites can be feature-rich, professional in appearance and easy to maintain. The best packages feature a complete solution that can be installed locally with a range of customizable options, such as calendaring systems, notifications, support for multiple authors, and syndication of content via the RSS (Really Simple Syndication) XML-based protocol.

The true overhead comes in the set-up. Once up and running, the blog site is quite self-sufficient, freeing both support staff and authors from the type of technical work that so often interferes with content development.

When considering a blog-based site as a replacement for an existing site or system, IT staff may want to introduce blogging alongside a current system to allow users to acclimate to the system. The easy integration of these systems should make the process painless, and chances are that the simplicity, accessibility and immediacy of the blogging tool will make it popular very quickly.

The number of uses for blogs are limitless. As a tool for extending learning and encouraging communication and community, blogs are expertly designed to seamlessly integrate the endeavors of many students and faculty.

blogs frequently produce entertaining or interesting writing from those who traditionally have not had such broad outlets for written expression.

In the classroom, a professor might document his or her personal research and allow students to follow their progress via the project's blog. Students could take an active role in following research developments, offering questions, or sparking new ideas both in the classroom and on the site. Such interaction could bridge the traditional divide between classroom instruction and research interests of faculty. Seeing firsthand how the instructor uses classroom concepts in the research could make the course material more relevant and actively engage students in the research interests of their professors.

Toward a Blog-Powered Future

The rise of blogging suggests new ways to think about collaboration and communication in the university setting. The business and high-tech sectors have already begun to take note, with many companies already looking at how blogging might foster innovation within their organizations.

The company behind Google, for example, the premier Web search engine, recently purchased one of the most ubiquitous blog code developers, Pyra Labs, and its product, Blogger. With the purchase, Google underscored its commitment to the new medium and the company's intention to develop new search methods around blogs, their distinct link structure, and rapidly changing content.

Although relatively new, blogging is already evolving, expanding and reinventing itself. One new approach is the knowledge log, or k-log. It is based on the idea that the modus operandi of blogs—the spontaneous transmission of ideas, analysis, knowledge—could be a valuable mechanism for preserving information for the research community. K-logs could serve as a repository to collect, organize and, later, search information that might otherwise not have been captured at all. From this, new relationships, insights, and discoveries could be drawn from the preserved data.

Other new systems, such as Wiki and projects based on it, propose allowing users to build a Web site—content and more—on the fly. In this model, an entire Web site is built with an open or blog approach, with individual users free to create and edit Web page content using any Web browser.

As blogging and blog-like site development and content management takes off, it will remain to be seen what its impact will be on institutional systems already in place. With thoughtful planning, careful monitoring, and the support of strong policies and guidelines, such systems can avoid being disruptive or threatening to publication and collaborative technologies already in place. Demand and interest in them will guide their usage, but those charged with the creation and maintenance of such systems must continue to be mindful of the power of the medium, the nature of the content, and the audience that may ultimately access it.

With thoughtful planning, careful monitoring, and the support of strong policies and guidelines, blogs can avoid being disruptive or threatening to publication and collaborative technologies already in place.

Sarah Roberts (sarah.r@duke.edu) *is an IT analyst and supervisor of the Multimedia Project Studio in the Academic Technology Services branch of the Office of Information Technology at Duke University.*

REFERENCES

The following links contain information regarding the latest developments with blogging, some opinion pieces on blogging's importance, and examples of how blogs have been employed recently.

Blogs transcend their niche roots to become a viable tool in the business world:
www.infoworld.com/article/03/02/21/08noise_1.html
www.infoworld.com/article/03/01/10/030113apblogs_1.html

Russian citizens use blogs to circumvent censorship and communicate breaking news with a personal perspective:
www.wired.com/news/culture/0,1284,56073,00.html

Free codebase for Web-based journaling:
http://moveabletype.org

Apple Safari developer documents the process of creating and refining the popular new Web browser in his online blog:
www.mozillazine.org/weblogs/hyatt

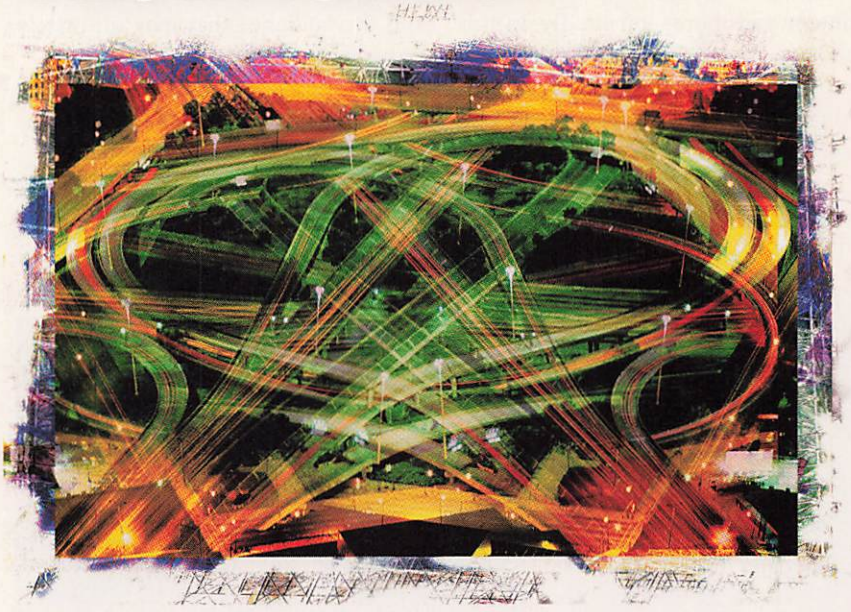
Musician Moby chronicles his tours and thoughts in his online journal:
www.moby.com/cms/viewalldiary.asp

Wiki proposes a return to the Web's roots:
www.infotoday.com/searcher/apr03/mattison.shtml

BUILDING AN ACCESS RAMP TO INFORMATION TECHNOLOGY

By Norman Coombs, Rochester Institute of Technology

It takes a campuswide commitment to support the technology needs of students with disabilities, for without the combined efforts of the library, computer, and technical staffs, as well as student input and the commitment of key administrators, these projects will flounder.



Physical ramps have long provided access to buildings for students with motor impairments and adaptive computer technology is now needed to provide access to the information technology of schools and universities. This was spelled out by the Department of Education's Office of Civil Rights, which in Case Docket 09-97-2002 said: "The magnitude of the task public entities now face in developing systems for becoming accessible to individuals with disabilities ... is comparable to the task previously undertaken in developing a process by which buildings were to be brought up to specific architectural standards for access."

None of us like being told what to do. Even less do we like thinking that what we have been doing needs to be changed because we didn't do it right. This is frequently what technical staff hear or believe they hear when they are told to make changes to their IT systems. Like anything else in technology, modifying a system is much more work than incorporating the necessary features at the beginning.

Technology is nothing more than a tool that empowers us to do something better than we could do without it. Adaptive computer technology empowers students with traditional print disabilities to receive education in the most level learning space available in history. By making these modifications we provide these students with independence, dignity, and the ability to compete as equals with their peers and actually reduce our educational costs in the process.

A woman graduate student in a major university in the West a few years ago complained to me that her university had no screen-reading software to let her work on a computer in spite of her blindness. The school was mandated to provide her access to an education, but I was amazed to learn that they did this by providing her with a human reader for her entire graduate program. When I noted that the cost of this would have purchased several adapted computer systems, I was amazed to learn that this happened because there was plenty of money allo-

Special Program for Business Executives
TDWI Business Intelligence Strategies
Tuesday, August 19, 2003
How Business and IT Can Partner to Create an Information-Driven Organization
Special one-day Executive Package available!

August 17-22, 2003
Boston Marriott Copley and
Hynes Convention Center
Boston, MA

The Premier Event for Business Intelligence and Data Warehousing Education

TDWI
2003 World Conference

Intensive, Unbiased Training In Historic Boston

Featured Keynote Speakers

Ralph Kimball
Total Cost of Ownership Starts with the End User

Barry Devlin
What's Next for Data Warehousing

Top Instructors

BI and DW visionaries deliver more than 50 full-day, half-day, and evening courses covering the latest trends and technologies

Hot Topics

- Data Warehouse Architectures
- Real-Time Data Warehousing
- Analytic Requirements
- Meta Data Management
- Advanced Data Modeling Techniques
- Ensuring Data Warehouse Value
- Gathering Business Requirements
- Information and Data Quality

Hype- and Hassle-Free Exhibits

Stay abreast of the latest trends and technologies with direct access to leading BI & DW solution providers

For more information, and to download a brochure, visit:
www.dw-institute.com/boston2003/

tdwi
THE DATA WAREHOUSING INSTITUTE

Media Sponsors

Application Development Trends · DAMA International · DATABASE Administration · DM Review · DSstar · ENT News · Enterprise · intelligent enterprise · IT Toolbox · TDAN.com · searchCRM.com · searchDatabase.com

Internet Resources for Assistive Technology

EASI: Equal Access to Software and Information (www.rit.edu/~easi)

EASI has served schools and universities since 1987. Besides providing campus consulting and on-site presentations, it provides eight month-long, online courses on different aspects of accessibility and has reached some 4,000 people in more than three dozen countries. It also provides hour-long, synchronous, Web conference presentations on specific skills to assist faculty and instructional designers. EASI also has contact with a national network of consultants with experience on major universities and colleges.

DO-IT: Disabilities, Opportunities, Internetworking and Technology (www.washington.edu/doit)

DO-IT is the recipient of several grants and national awards for its work in helping students who want to make careers in the science disciplines. It received a White House award for its mentoring program. DO-IT also has close ties with regional and local organizations that can provide on-site assistance.

WebAIM: Keeping Web Accessibility In Mind (http://webaim.org)

WebAIM was established with a FIPSE LAAP grant and maintains a Web site with a rich array of resources. Its staff frequently presents at conferences and on college campuses. While the supporting grant is ending, WebAIM is making plans to continue its excellent work beyond the period of grant funding.

cated to the reader budget but not to an equipment budget.

Today, there are a number of adaptive technology systems that run on standard computers and enable people with disabilities to operate most common computer applications. Synthetic speech can speak the contents of the screen for someone who is blind. Font sizes can be enlarged for someone with limited vision. Voice recognition enables someone without adequate hand use to control the computer. Someone with visual or cognitive processing problems can change the look of a monitor and simplify its display, enabling them to better understand what is presented. Besides being a cost-efficient way to provide an education to this special population, these students will significantly improve their academic performance over the cost of using other support systems.

However, there are some common educational software programs that have not been designed to interface with adaptive technology, and there are some disciplines that pose other significant barriers. Software must be designed so that it can be operated with the use of keyboard commands and not only function with the use of a mouse. Some technical information is still represented in Braille or raised-line hard copy for users who are blind, and do not, as yet, totally function in a digital setting.

Relevant Legislation

Historically, the 1973 Rehabilitation Act has been the cornerstone of law for education and disabilities, particularly Section 504, which mandates that students with disabilities receive equal opportunities for a full education. The second piece of relevant legislation is Title II of the Americans with Disabilities Act, which deals with providing equal communications for people with disabilities as for those communications provided to others.

The Department of Education case highlights several points associated with Section 504 and Title II, specifically the law's application to technology accessibility in the California State university system. As the docket indicates, recipients of federal financial assistance are prohibited from discriminating on the basis of disability in programs and activities. Title II of the ADA also requires that communications with persons with disabilities "are as effective as communications with others." In this context, communication means "the transfer of information, including (but not limited to) the verbal presentation of a lecture, the printed text of a book, and the resources of the Internet."

The Office of Civil Rights has held that, "the three basic components of effectiveness are timeliness of delivery, accuracy of the translation, and provision in a manner and medium appropriate to the significance of the message and the abilities of the individual with the disability." Increasingly, the law is being interpreted to set the bar very high in defining what is "a reasonable accommodation."

In specifically discussing the university library, Case Docket 09-97-2002 states that the larger and more financially endowed the library, the higher the expectation that a greater volume of information will be made available within a shorter amount of time, particularly when reasonably priced adaptive technology is available to replace tasks that previously required personnel. An important indicator regarding the extent to which a public library is obligated to use adaptive technology is the degree to which it relies on technology to serve its non-disabled patrons. Similarly, the more a school is invested in information technology, the more, the court believes, it can afford the cost of adaptive technology, and it cannot claim the expense is an unreasonable burden.

The third piece of legislation that affects accessibility is the 1998 revision of Section 508 of the Rehabilitation Act, which addresses the accessibility of electronic and information technology in considerable detail. The law, "requires access to electronic and information technology provided by the federal government," and specifies that

federal agencies must ensure that this technology is accessible to employees and members of the public with disabilities to the extent it does not pose an "undue burden." Section 508 primarily applies to the federal government. A Department of Justice Web page concerning Section 508 says that, "states which receive federal funds under the Technology Related Assistance for Individuals with Disabilities Act of 1988, are required by that Act to comply with Section 508."

This has resulted in many vigorous discussions as to whether this means that state universities and colleges are covered by Section 508, though there is no widely accepted conclusion to the question. Some colleges have adopted the Section 508 standards either to be safe or because they seem like a credible guide to follow. Others seem to believe that it does not cover them. Regardless, institutions may be wise to spend money on making education more accessible rather than defending themselves from litigation.

Campuswide Responsibility

The proverb says that it takes a village to raise a child, and so it takes a campuswide commitment to adequately support the technology needs of students with disabilities. This does not mean that the task is that difficult. Rather, today's decentralized information technology systems themselves cross disciplines and departments.

At many institutions, the technical departments have argued that all of the needs of students with disabilities should be handled by that office. Not only does that department's staff lack the advanced technical know-how it requires, but the Office for Civil Rights insists that students with disabilities, like all students, are the responsibility of the entire institution.

Disabled student service staff do not have the advanced computer technology skills that may be needed to fix a problem. The computer staff do not have the awareness of disabilities that may be needed to effectively work with special students. Technical staff frequently are short on human skills. None of the groups have the skills to advise faculty on designing accessible course content. Librarians may be called on to assist a student in researching information and are a vital aspect of a student's education. Without the commitment of key administrators, the project will flounder. Finally, it requires student input to be sure that the support actually serves their needs.

The most irksome topic in the task is deciding who pays for adaptive computer technology and its support.

Software must be designed so that it can be operated with the use of keyboard commands and not only function with the use of a mouse.

When I procured funds for my college to purchase a Braille embosser, (the equivalent of a printer), there was a six-month-long battle between the computer department, student affairs, and the library for which department should shoulder maintenance and support. No single department wants to see its budget stressed with new responsibilities.

Reasonable Costs

Because the department dealing with students with disabilities is usually one of the poorer departments, it is a bad home. The computer department usually has more funds available, and, if it has to be connected with the budget of a single department, it can best afford the expense. Many colleges provide a special budget line coming out of institution-wide funds, although it may become housed in a single department.

The courts have stated clearly, when discussing "unreasonable" costs, that it would evaluate that claim based not on a department budget but on the institution's finances. This means that the claim that some special equipment is too costly will seldom if ever be considered.

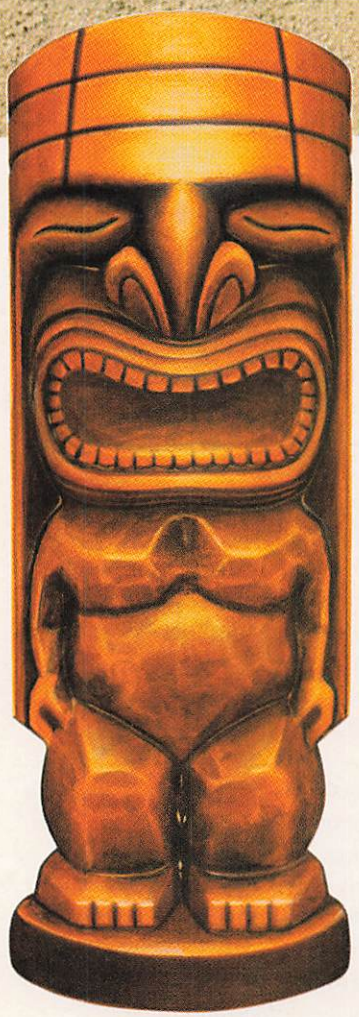
Top Ways to Get Started

- Begin by putting an institutional commitment into practical effect.
- Identify groups on campus that need to be involved in supporting the provision of information technology access for students with disabilities.
- Look for individuals who have a passion for creating this level learning space.
- Be sure to get administrative and student involvement.
- Network with other campuses to learn what they are doing to create this barrier-free information technology system.
- Check with professional organizations to see what support mechanisms they may have. Contact organizations that specialize in assisting schools and colleges to meet this challenge.
- Be sure to allocate adequate financing and establish some institution-wide source for funding.

Norman Coombs (nrcgsh@rit.edu), Ph.D., is professor emeritus of the Rochester Institute of Technology, a teacher of distance learning courses in history, and chief executive officer of Equal Access to Software and Information (www.rit.edu/~easi/), a provider of online training on accessible information technology for persons with disabilities.

HAWAII

STRENGTHENING THE



There are always some challenges that are common to any network of campuses, such as a two-year community college that works with a four-year campus to provide smooth articulation and transfer, or a system of state schools working together to deliver distance learning to their residents. The challenges include:

- Making it easy for students to engage with multiple campuses in the system, concurrently and over time
- Providing a rich array of accessible services to all our constituents at all our campuses
- Maintaining the identity of each individual campus while advancing the brand and loyalty for the system as a whole
- Containing costs while expanding services

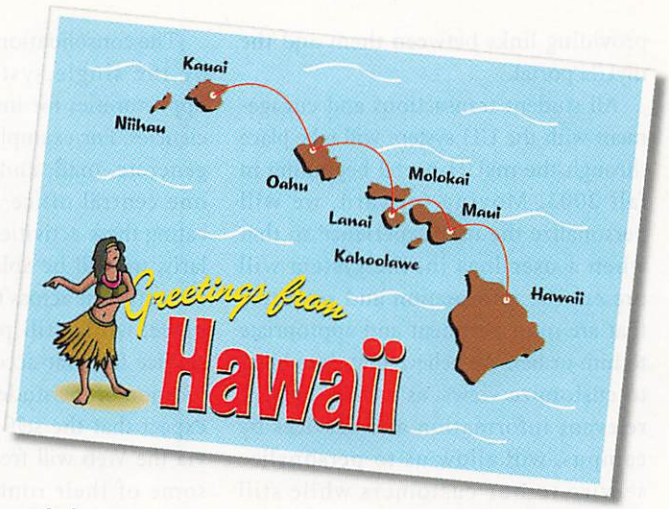
To address these challenges, we are in the process of implementing a single, integrated student system to unite all of our campuses and better serve our learners. In the past, each of the 10 campuses operated their own systems and processes. Our new system will include SCT Banner for the financial aid and student information system, and the SCT Luminis product family for the portal and integration. When the full implementation is complete in 2004, we believe it will be higher ed's first single, shared student database to serve both two-year community colleges and four-year universities.

Currently, all 10 campuses are live for fall 2003 activity with SCT Banner Student and Financial Aid. We will be live with a single common portal, myUH, in the fall of 2003.

Like Students—Anytime, Anyplace

The new system, coupled with its self-service Web applications, will let students register anyplace, anytime, and to move seamlessly among UH's 10 accredited campuses. This flexibility is essential because the State of Hawaii serves resident students on six different islands, and students cannot easily travel among them to attend classes. Many of our students take courses at a community college, and then transfer later to one of our four-year

The University of Hawaii (UH) is unique in that all public higher education institutions in the state—community colleges, baccalaureate campuses, and the research university—are part of a single university system with one Board of Regents and one president.



By David Lassner, University of Hawaii

SUM OF ITS PARTS

campuses. Some of our university students complement their course schedules with offerings from a nearby community college. And our distance learners routinely enroll in courses from multiple campuses each semester.

When our implementation is complete, it will eliminate the burdens of interacting with the UH system and allow students to focus on learning. For example, UH's nearly 45,000 students will be able to apply online and register for classes to as many UH campuses as they like through one process, and submit just one copy of paper transcripts from non-UH campuses. Their financial aid officers at their home campuses will be able to access their enrollment information at all UH campuses. Students will be able to pay their bills to all campuses either online or in person at the UH campus most convenient to them. Students and their advisors will be able to see their full academic history and perform degree audits and academic planning with the full picture. Internal transfer students will not require a paper transcript. And students will be able to request all their UH campus transcripts with a single transaction. Yet, each campus will remain academically independent with its own programs.

Personalized Web-Based Services

The creation of a single myUH portal will broaden our Web-based services and access to them. The portal will feature a common interface that can be personalized for each constituent with Web-based access to services, including UH e-mail, a calendar that is automatically populated with their classes and other events they select, and full integration with UH WebCT services and other locally developed and JA-SIG contributed uPortal services.

The integration of services and resources that will be presented within a single portal will enable us to provide students at even the smallest of our campuses with a much greater breadth of services than a single campus can provide on its own. Our aim is that the single portal approach will make students at all our campuses feel more a part of the larger UH system. Students will be able to see what's available across the system, not just at the campus where they are currently enrolled.

Campus vs. University Brand Loyalty

The differences among our 10 campuses are as deep as the water separating the state's islands. Each campus has its own course catalog, its own course numbering and grading systems; and the offerings across institutions range from vocational workforce development programs to doctoral programs. It is essential for individual campuses to be able to maintain and to communicate their unique and special strengths.

Although all the campuses will work from a single system, we will retain individuality where needed by customizing the SCT solutions using Oracle's Virtual Private Database (VPD) capability. This approach protects the underlying architecture and enables campus specificity where appropriate, yet provides users with one seamless, single point of entry.

During our implementation we are evaluating functions to determine which ones are more appropriate for system-wide implementation and which ones are more appropriate as a campus-specific component. We are reviewing applications within the portal in the same way. For the time being, we will maintain our standard Web sites for each campus,

providing links between them and the myUH portal.

All student transactions and engagement with the UH system will take place through the myUH portal beginning in fall 2003. Moving forward, we will personalize the user experience so that when a user logs in, the system will present the information and resources that are most pertinent and appropriate to him or her. We believe that this ability to customize views, as well as present relevant information and services by campus, will allow us to personalize service to our customers while still advancing the UH brand. We expect this personalization, along with the presentation of resources available throughout the UH system, will encourage students to become lifelong learners and supporters of UH.

Containing Costs, Expanding Services

Moving to a single system is allowing us to provide greatly expanded services and resources to all our campuses and users without increasing costs proportionally. We previously had 10 IT staffs supporting four different software packages running on 10 different server platforms, each with associated hardware and software maintenance costs. Now we're supporting only one physical set of servers and one application for all 10 campuses.

The consolidation of services enabled by the single system also provides opportunities for improved service efficiencies. For example, we will be able to generate, mail, and bill transcripts in one central office rather than duplicating these activities in 10 places. Similarly, we will be able to manage billing for a student across the system from one place, while still providing personal service for that account at the campus location of the student's choice. Also, we expect that the self-service applications via the Web will free up our staff from some of their routine, clerical work. This will allow staff to offer more customer-facing services and deal with the difficult fiscal situation in Hawaii as in other states.

The integrated system also will help our campus and system managers and executives in their decision making. At the campus level, managers will have more timely information about key trends than ever before. Previously, we gathered and normalized data from each of our 10 campus student information systems and consolidated it into one unified database to get an overall system-wide picture. The single system will provide better access to current and institution-wide data so that our administrators and executives will have better information for day-to-day decision making. This might include adding new course sections to meet student needs, long-term planning of academic programs, and understanding the financial implications of students' course-taking patterns over time.

The implementation of the system-wide student information system and portal are essential to transforming the University of Hawaii into a global but locally oriented 21st century university system that is more than the sum of its parts. In the near future, student access across the system will be based on student preparation and choice, and transfer opportunities will be based on the achievement of educational objectives. The University of Hawaii will evolve to a coherent system of campuses and programs that our students can enter, leave, and re-enter in different ways as their lives evolve and change.

When students succeed by having information and services at their fingertips, when faculty have easy access to the information and services they need to teach, and when managers gain by having the information to plan improved services, then the university is focusing on the right things—the success of our students, our faculty, and our staff.

***David Lassner (david@hawaii.edu)** is chief information officer at the University of Hawaii.*

Digital Tweed, *continued from page 17*

for classes, and information about internship services. It would also provide information about the internship experiences, initial jobs, and starting salaries of recent Acme students in my major and with my GPA.

My AAP would support a student ePortfolio. *My AAP* would allow me to create links to online, off-campus resources I deem important, including the Library of Congress, the *New York Times, Rolling Stone,* Google.com, and the weekly closeout items posted on Web pages at Abercrombie, Banana Republic, and JCrew.

Much like Amazon, *My AAP* would attempt to meet me half way—anticipating, identifying, and offering services I might want (a winter coat, a new CD, the latest Harry Potter book) or may really need (the stat class I've avoided for three terms).

Admittedly, some will view *My AAP* as an online version of HAL, the omniscient, omnipotent, and ultimately out-of-control supercomputer from Stanley Kubrick's *2001: Space Odyssey.* Others, concerned about privacy issues, will caution against seeding campus information systems with too much data about students.

But in the end the real issue is about service, not data and technology. As a consumer, I don't care much about Amazon's technology. I'm willing to share some data about myself in return for better service.

And for campuses, today's IT issues are also about services: Providing more and better services to support the educational mission of the institution and to enhance the educational opportunities and experiences of students. That said, there's lots that we in the campus community can learn from Amazon.com.

***Casey Green, Ph.D. (cgreen@campuscomputing.net)**, founding director of The Campus Computing Project (www.campuscomputing.net), is a visiting scholar at The Claremont Graduate University.*

- Copiah-Lincoln Community College uses Jenzabar CRM software to improve campuswide communications.
- Rochester Institute of Technology implements online administrative systems using Oracle E-Business Suite 11i.
- Creighton University Medical Center complies with HIPAA using PKZIP 6.0 Professional Edition.
- Emory University saves more than $10 million switching from paper to electronic requisitioning using Procure+ from ePaper.

Copiah-Lincoln Community College ■ By Howell Garner

Improving Campuswide Communications

One of Mississippi's oldest community colleges, Copiah-Lincoln, had been using homegrown software applications to collect data on students, grades, and financial aid since the 1970s and were now obsolete. For many years, Copiah-Lincoln had an eye on improving the manner in which each member of the campus community would be able to access need-appropriate information while communicating with one another across constituent-defined lines.

Established in 1928, Copiah-Lincoln has continued to grow in size and prestige. The college now occupies a prominent position in the state's educational system with a district enrollment of more than 3,000 and a physical plant valued at more than $35 million. Copiah-Lincoln faced the daunting challenge of moving the college deeper into the 21st century. The school needed to find a way to dramatically upgrade the on-campus computer network in order to show students, faculty and administrators that it was committed to improving cross-campus efficiencies—this was its No. 1 goal. The college student of today is well versed in modern technology and most, if not all, own cell phones, palm pilots, laptop computers, and MP3 players.

The technologically savvy student of today made it essential that Copiah-Lincoln choose a software solution that was sophisticated enough to appeal to that group, yet intuitive enough so that faculty and administrators would not be intimidated by the new software.

Seamless Integration

"In searching for the software solution that would benefit each member of the campus community, Copiah-Lincoln chose the Jenzabar Internet Campus [JIC]product suite for its intelligent business solution package that can seamlessly link all aspects of the college campus, be that of a student, faculty member, an administrator, or a senior executive," explains Dr. Howell Garner, president of Copiah-Lincoln Community College. "Jenzabar provided Copiah Lincoln with a total campus solution of both front- and back-end products, eliminating the need to use multiple products from numerous providers who specialize in one or the other."

JIC is a Web-based software suite that seamlessly integrates each end of a college campus, from students to administrators to faculty, delivering role-based access to administrative and academic information. The JIC suite treats each constituency as an entity with different needs, and by way of Jenzabar's many customer relationship management (CRM) portlets, applies role-appropriate customized information. For example, using CRM Student, a student can easily view grade records, class Web sites, housing information, and financial statements. Admissions officers can compile and manage numerous applications from potential students with the Admissions portlet. In addition, a student advisor's portlet provides the necessary tools to assist students, such as student profile information and degree auditing. Each portlet provides information and tools appropriate to the user's role on campus, yet allows sharing of information between various departments.

"In addition to improving campuswide communications at Copiah-Lincoln, the single largest benefit of working with Jenzabar is that its products have given students, faculty, and administrators both easier and timelier access to information," says Dan Dykes, director of information technology at Copiah-Lincoln. "In essence, Jenzabar's software allows us to bring the various databases of

information directly to the user, which dramatically cuts down on the time it would take the IT department to respond to them if our homegrown software applications were still in use today."

Financial Aid

There is no department on a college campus with more data flowing in and out on a daily basis than the financial aid office. Aside from maintaining accurate information on students receiving financial aid, this office needs to meet the demands of the federal government and their numerous rules on reporting. Federal regulations regarding electronic filing dictated the need for a comprehensive software package that allows the office director and staff to compile, manage and report on hundreds of eligible students. Using Jenzabar's Financial Aid module, Copiah-Lincoln has simplified the process of extracting value-based data from application systems for trend analysis, with consolidated reporting across multiple subject areas of the campus. The director and staff can now access and compile information on student's grade status, work study enrollment and payment schedules on a regular basis, providing them with up-to-the-minute reports of a student's eligibility and aid status.

At the outset of its relationship with Jenzabar, Copiah-Lincoln was most concerned with its return on investment. After all, the software license, installation, and recurring maintenance costs can run anywhere from a few hundred thousand dollars at a small college to millions of dollars at a large college or university. Proving that Jenzabar's products are cost-effective, Copiah-Lincoln looked at the remarkable savings seen across all departments, especially the registrar's office where grades are compiled. Administrators were faced with the daunting task each semester of printing pricey, individualized scanable forms, manually filling in countless grade bubbles, uploading the grades into the database, and correcting the foreseeable errors. Since taking its grading process onto the Web, Copiah-Lincoln has nearly eliminated the paper trail of grades, thus saving thousands of dollars in printing costs and reducing the number of human errors that occur when thousands of grades are being scanned by hand onto paper. Faculty have found the software easy to use and the most technically challenged professors are up and running in 30 minutes or less after a short training session.

"You would think that at least a few professors would have difficulty learning the new process but to its credit, Jenzabar has built a module that is powerful yet easy to use. It's not often that you find that," explains to Dykes.

"As Copiah-Lincoln continues to evolve and shape the young minds of its students, these future leaders will know that Copiah-Lincoln made a substantial investment in their future by providing them with the most powerful higher education tools available today," according to Dr. Garner. "Using Jenzabar's Internet Campus Solution has enabled Copiah-Lincoln Community College to move to the information age where the delay in sharing information between students and faculty is no longer hours or days but only minutes."

"... Jenzabar has built a model **that is powerful** yet easy to use. **It's not often** you find that."

Howell Garner, Ph.D. (howell.garner@colin.edu), *is president of Copiah-Lincoln Community College.*

Rochester Institute of Technology ▪ By James Fisher

Gaining Efficiency and Rapid Access to Information

When the Rochester Institute of Technology (RIT) began shopping for a Y2K-compliant administrative IT system in the late 1990s, its vision was to usher in an era of enhanced operational efficiency along with the new millennium. Today, that IT vision is a reality. Our Web-based administrative systems are reducing costs, expanding access, streamlining workflow and improving efficiencies across our campus.

RIT began looking for new human resources (HR), financial, and purchasing applications, in part, because our 25-year-old legacy applications were not Y2K compliant. We did not see value in updating code that would not give us the functionality we required, so we began to search for a new solution. In addition to Y2K compliance, we had two primary objectives in seeking new administrative solutions: streamline workflows; expand and accelerate our financial and HR reporting capabilities.

RIT selected Oracle's applications, and in 2001, upgraded to the Web-based Oracle E-Business Suite 11i to take advantage of new features and functionality, such as automated workflows and self-service, which allow our employees to manage their personal data online. We were able to implement the applications with minimal customization, saving time and money.

Employee Benefits

Self-service HR was particularly appealing to our organization for the obvious reasons: reducing the administrative burden and improving employee access to personal information and benefits. Oracle Self-Service Human Resources enables all 2,600 RIT employees to access and manage their personal

information online. For example, an employee can go online and look at a pay slip rather than visiting or calling the payroll department. We are also eliminating the distribution of pay stubs for direct deposits, which will result in an estimated savings of $30,000 annually in mailing and postage costs, alone.

In addition, HR and managerial staff members now have faster, easier access to historical information. Under our previous system, much of our HR data was paper-based, a format that required time-consuming manual research to access historical documents. Today, staff members simply go online to securely reference historical information, such as W-2s from previous years.

Streamlining Access

Our self-service HR applications also deliver much greater control over our benefits program than our old system, which was cumbersome and prone to errors. For example, standard functionality handles rate changes en masse, and eliminates date and setup issues for bi-monthly and monthly payrolls. Online capabilities also reduce the time and effort needed to investigate, research, and resolve problems.

Our new system also has expanded employee access to benefit information, with self-service displays showing current benefit plan enrollment. In many ways the system affords greater privacy, as employees can check sensitive information from the privacy of their own computer as opposed to having a personal conversation with an HR representative. Access is critical to a successful self-service HR implementation. RIT, therefore, makes computer terminals available at kiosks for employees who do not work in offices so that they can also readily access the system.

Faster Financial Reporting

The overhaul of RIT's financial systems has enabled quicker access to financial information and has expanded our ability to share data with staff members. In addition, we have dramatically accelerated our financial reporting capabilities.

Creighton University

Researchers Comply with HIPAA Using PKZIP

Creighton University is consistently recognized as one of the top private universities in the country for medicine, pharmacy, physical therapy, occupational therapy, dentistry, and nursing. In addition to teaching, research is an important aspect of the school's programs. Faculty members and graduate students conduct research in many areas, including ethics, clinical drug studies, innovative educational techniques, among others.

HIPAA Implications

As part of their ongoing research, professors, doctors, graduate students, and others exchange a wide range of confidential patient data. To maintain the integrity and privacy of such data, the U.S. Government introduced the Health Insurance Portability and Accountability Act (HIPAA) in 1996 and established April 2003 as the deadline for compliance. In 1999, Creighton set up a working group to look at the implications of HIPAA as it related to its medical centers. In 2002, the school began to consider the ramifications of HIPAA on its research efforts.

"We knew that the time was drawing near when we would have to have a standard HIPAA procedure in place to adequately protect subject identifiers from improper use and disclosure," says Dr. Phillip Vuchetich, assistant professor of Pharmacy Sciences.

Meeting Requirements

The university was already using PKZIP to compress large files, so it was familiar with the product and its capabilities. However, the school wanted to determine if the newest version of PKZIP, which provided strong encryption, could meet the tough security and privacy standards set forth by HIPAA. Alternative solutions Creighton could have implemented included S/MIME and PGP, however, these methods would have required greater investment, are more complex, and raise interoperability issues.

Because PKZIP integrates with both PKI and non-PKI environments, the cost was much less for deploying internally as a security solution as well as for interoperating with external recipients.

"Our goal was to assess PKZIP's capabilities with regard to protecting health-related data as well as the integrity of our research," says Dr. Vuchetich.

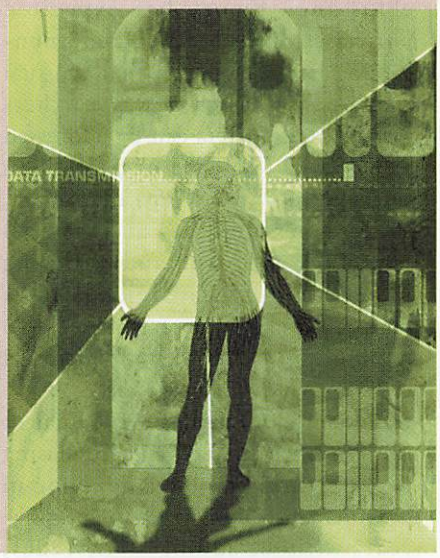
To determine if PKZIP could meet HIPAA requirements, Dr. Vuchetich, along with Dr. Vasant Raval, chair of the department of Accounting in the College of Business Administration, launched a formal PKZIP study in June 2002. The researchers implemented PKZIP in a Microsoft Windows environment made up of more than 110 researchers, and then began testing in two browser environments, Microsoft Internet Explorer and Netscape Navigator.

"The implementation of PKZIP was swift and relatively easy," explains Dr. Raval. "We found the product performed data encryption well, and integrated smoothly with externally supplied digital certificates. Plus, once we equipped a few users, PKZIP scaled quickly and easily to our remaining researchers."

Seamless Integration

Today, more than 300 researchers associated with the Creighton University Medical Center rely on PKZIP to exchange confidential patient data and other research-related information. By relying on PKZIP's seamless e-mail integration with Microsoft Outlook, researchers now have an easy-to-use solution for sending e-mail attachments compactly and securely.

Phillip J. Vuchetich, Ph.D. (philv@creighton.edu), is assistant professor of Pharmacy Sciences, and Vasant Raval, Ph.D. (vraval@creighton.edu), is professor and chair, Accounting, both at Creighton University.



With our legacy system, it took us approximately three weeks each month to close the books and distribute paper reports to departments. By the time the reports reached the departments, they were of limited value. Now departments can access reports via the Web in approximately one week. Our security features ensure that users can access only the reports they are authorized to see.

Increasing Efficiency

RIT also has streamlined its purchasing workflow. The approval process is now automated using Oracle Purchasing, which produces system-generated alerts that remind staff members about pending approvals. RIT also works more efficiently with vendors because our Oracle purchasing and financial applications are tightly integrated. Key vendors are paid more quickly. At the same time, we can consolidate purchasing because it is queued up automatically through our system, allowing us to take advantage of volume discounts.

New Roles

Our new administrative applications have significantly changed the roles of many of the administrative staff. Before implementing Oracle E-Business Suite applications, financial and HR staff members were focused on "processing" duties. Now they can direct more attention to analysis, improving business processes and strategic planning. At RIT, our administrative systems are fulfilling the true promise of technology—improving efficiency while expanding personal and organizational horizons.

James Fisher (jfisher@mail.rit.edu) is assistant vice president for Finance and Administration at the Rochester Institute of Technology.

Emory University ▪ By Rex Hardaway

Saving Millions with Electronic Procurement

Until 1998, Emory University purchased all supplies and equipment the old-fashioned way: with paper-based requisitions routed through a central purchasing office. That year, officials switched to an electronic procurement system called Procure+ that puts Web-based requisitioning tools on the desktops of employees throughout all university facilities. The system has not only produced the anticipated efficiencies and decentralized decision-making, but also has cut procurement costs significantly.

With Procure+ from Virginia-based ePlus Inc., Emory has expedited purchases of both catalog and non-catalog items, ensuring that unusual requests by the school's researchers and medical centers can be addressed as easily as standard orders. As an unexpected but welcome byproduct, the system's ability to automate all sourcing, approval and ordering processes also has saved thousands of man-hours and an estimated $10 million in purchasing and personnel costs since implementation.

In addition, Emory's eProcurement initiative has enabled the purchasing department to handle a doubling in procurement volume over the past five years without adding staff. Today, roughly $500 million in spending passes through the Procure+ system annually, eliminating virtually all paperwork and substantially reducing the time between requisition and fulfillment.

Point-and-Click Approvals

From its sprawling campus in Atlanta, the school's procurement needs range from computer equipment, paper, and cleaning supplies to radioactive isotopes, microscopes, and CAT scanners.

Traditionally, every requisition had to be routed by hand or by fax to every entity with approval authority, from academic department heads to the university's Environmental Health and Safety Office. Each request was routed consecutively to each individual in the approval chain, and at each step the paper requisition forms could easily be misplaced on a desk or in a file folder. With as many as 44 different signatures required to green-light a particular transaction, approvals were sometimes delayed for weeks.

Since implementing Procure+, the requisition process has changed dramatically. Now purchase requests are routed electronically—and simultaneously—to all necessary reviewers. This allows requests to be approved in as little as an hour. Purchase orders are generated and delivered to suppliers electronically as well.

The system has been customized so that it automatically adapts to each department's approval hierarchy, budgetary limits and commodity restrictions, even when multiple departments and fund sources are involved. Beyond the basic workflow built in to all eProcurement solutions, Emory's has the ability to recognize when a particular request must be reviewed by additional entities such as the university's Office of Grants and Contracts, which manages federal dollars. This is vital not only to keep the approval process running smoothly but also to accommodate the thousands of ad hoc purchase requests flowing from Emory's research community and other sources.

As an important fringe benefit, the 1,500 Emory employees who use the system can track their requisitions and orders online. All parties involved are immediately notified of approved requests via e-mail, and users can also search the system's database to determine the status of any pending request or order. This makes it possible to quickly identify breakdowns in the approval process. It also relieves

continued on page 41

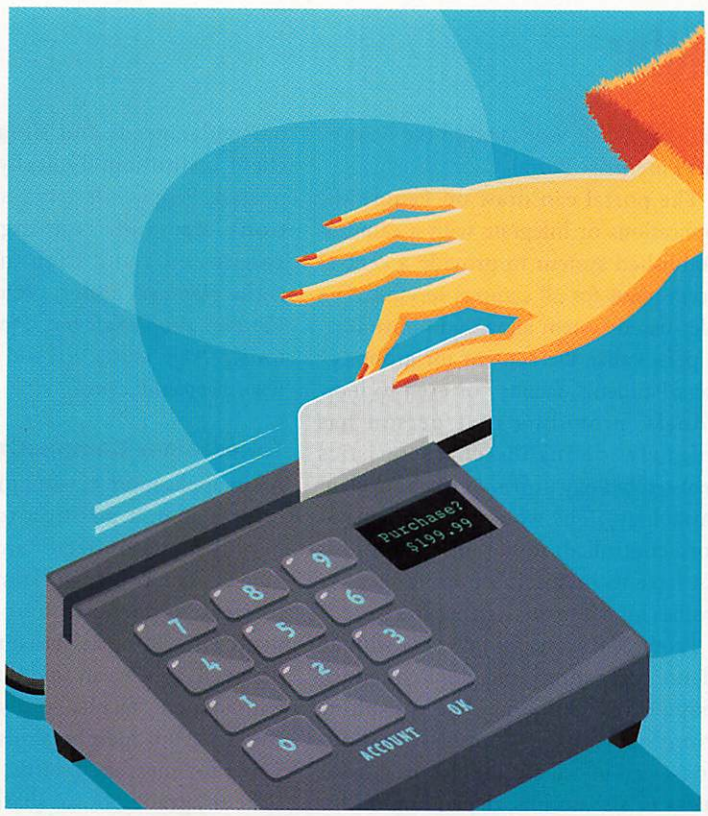
FEATURED PRODUCT

Creating the Cashless Campus: Blackboard Transaction System

The cashless campus is nigh. At more than 450 schools around the world, the Blackboard Transaction System has replaced 20-dollar bills with technology, reducing the cost of campus commerce, streamlining systems, generating revenue, and producing unexpected peripheral benefits.

A transaction system is more than a cash card that deducts funds from a student's account. It has the power to replace cash and traditional commerce on practically every corner of campus—and beyond. It also closes the gap in the chain of services provided by course management providers and portal vendors.

Says Matthew Pittinsky, chairman and co-founder of Blackboard Inc., "Historically, transaction systems have been described as one-card solutions that would unify all card-based services. However, over time the software behind these solutions became smarter, until the real value of the system became not the card but the underlying transaction system." In other words, "It's not about the card. It's about the software behind the card."



A couple of years ago, Blackboard decided to add a transaction system as a natural extension of its learning and portal solutions. "We wanted students to be able to go to the bookstore [actual or online] looking for the book for their course and to purchase it as well," says Pittinsky. "We wanted students to find out about a concert through the campus portal and then buy tickets to that concert."

Installing the Blackboard Transaction System completes the circuit, so that gathering information and performing transactions flow seamlessly. Professors create their course materials lists within the course management system. The portal links students to their courses and required materials—be they digital or hard copy—which they can order online as well as in the bookstore.

From the students' and professors' perspectives, this is extremely convenient. From the university's perspective, it is both convenient and smart. By designating an official source for textbooks and supplies, campuses keep student money on campus instead of watching it flow to the off-campus stores. Transaction-system accounts eliminate the need for credit and debit cards, which cost campuses money. In addition, students can shop 24x7 and are more likely to shop more frequently.

The transaction system provides immediate online reporting. Campuses instantly know how much a user has spent and how it was spent. Students can track their accounts online, designating funds for particular needs (tuition, books, meals, miscellaneous). In turn, parents can limit not only the amount students can access but also where they can spend it. Online reporting

also facilitates inventory management and simplifies sales projections.

The Blackboard system—which is available in both Windows and Unix versions—integrates and synchronizes campus systems. There are immediate financial and secondary benefits for the institution. First, it has the potential to eliminate the need for cash for many campus and off-campus purchases, including vending machines, laundry, meals, parking, copying and printing, and bookstore purchases. This not only reduces the costs of handling cash, but it can directly increase campus revenue: Students who don't need to scrounge for change for the laundry machines are more likely to spend money on other campus purchases.

According to Blackboard, where campuses have implemented the transaction system, revenue has increased. The company's research shows, for instance, that vending machine revenues go up with the cashless system, and that vending contractors often are willing to pay for the installation of card readers knowing that they will reap the benefits in higher sales. Convenient campus vending programs keep student money on campus.

In addition, campuses are experiencing additional peripheral rewards. For example, when cashless laundry machines replace coin-operated machines, vandalism decreases, pricing can be set to parallel the fluctuating cost of energy during the day, and no one has to haul around hundred-pound bags of quarters. Campuses that apply the transaction system to copying and printing get better reporting of printer/copier failures. They also have the option to set printer/copier costs according to their own policies, which may vary depending on the department or constituent. According to Michael Stanton, senior director of corporate communications at Blackboard, campus users tend to do more printing and copying with the cashless system than they did before.

In addition to the transaction system, which has been in place for about two years, Blackboard now offers Bb One, a transaction-based outsourcing solution that turns the university ID card into an off-campus payment card. Launched in early 2003, about 25 institutions have adopted the program so far. Bb One works with off-campus merchants to create a network of places where users can make cash-free purchases. Students and parents can make account deposits and manage their accounts online.

Does eliminating cash make students, faculty, and staff safer? Perhaps—the system relies on PIN codes and swiping technology to verify user identity. There's a convenient online cancellation option if the user's card goes missing; when reported stolen, a card becomes immediately invalidated. Does the cashless economy make life simpler? Sure—and it means no more quarters to drag around.

For more information, contact ***Blackboard Inc.****, Washington, D.C.; (800) 424-9299; www.blackboard.com.*

PRODUCT ROUNDUP

Portal Vendors Go Modular

If you were a university administrator and needed to get a portal up and running fairly quickly, to whom would you turn?

PeopleSoft Campus Portal

Pre-built with PeopleSoft 8 Internet Architecture, Campus Portal is an out-of-the-box solution designed for rapid implementation. Administrators can customize the portal's look and features as well as its navigational links to best fit each campus's needs. PeopleSoft's portal is comprised of Portal Packs, or "pagelets," modular building blocks that represent a specific piece of functionality or information. Each pagelet parallels a particular PeopleSoft product line. For instance, there are Portal Packs for human resources, customer resources management, and financials. The portal packs are plug-and-play applications that specifically work within the PeopleSoft Enterprise Portal.

The portal can draw on PeopleSoft applications or integrate with a campus' established system to provide a central access point for all campus services. The roles-based system allows administrators to personalize the content for groups of users (students, faculty) or even to individuals, providing that person has uniquely definable characteristics (tenured biology professor teaching plant physiology). The whole system is password controlled, so the institution does not have to maintain multiple security profiles for the many systems accessed.

PeopleSoft Consulting works with all clients to ensure rapid deployment of PeopleSoft technology. The consulting group's six-phase "compass methodology" can install a campus portal in six weeks to six months, depending on the particular needs and situation of the client institution. Typically, roll-out is phased; PeopleSoft gets essential functions up and running for core constituents and then manages the entire plan over a short period of time.
Contact: ***PeopleSoft Inc.****, Pleasanton, Calif.; (800) 380-SOFT; www.peoplesoft.com.*

Timecruiser CampusCruiser

As an application service provider, Timecruiser is in a position to build and deploy a customized campus portal quickly. The company claims to be able to create a portal in four weeks. The product, CampusCruiser portal, is designed to be easily and quickly loaded with student, faculty, and staff data, all courses, club memberships, and more. Tools for message boards, assignment systems, grade books, shared files, and

shared links are ready to go. Timecruiser provides training for portal administrators. It also offers optional train-the-trainer end-user training, as well as implementation consulting, with the focus on how to ensure rapid adoption of the portal by end users.

CampusCruiser integrates with any ERP system. Its features include integrated multiple calendars that operate dynamically on a single screen, integrated e-mail, and invitations. Other communication features include e-mail forwarding, news, announcements, and chat. Course management tools give users access to not only academic information, but also clubs and organizations. Users can personalize the portal with MyFiles and other features and can also synchronize data on their PDAs. A distributed administrative function allows administrators to grant some administrative privileges to faculty and staff users. CampusCruiser is highly customizable for each campus and user.
Contact: ***Timecruiser Computing Corp.,*** *Fairfield, N.J.; (877) 450-9482; www.timecruiser.com.*

Blackboard Portal System

Blackboard Inc. views campus portals as community-building tools designed with the end user in mind, rather than just as middleware for the transfer of information. Release 6 of the Blackboard Portal System offers improvements in four key areas: common areas, centralized content management, customization, and collaboration. New features make it easier to provide meeting areas for portal constituents both within the portal (content areas defined by user roles) and outside of it.

Administrators can delegate content management and ownership to particular constituents. Release 6 also allows the school to create up to 20 customizable institutionally sanctioned portal roles. Finally, enhanced collaboration features, including discussion boards and a new Virtual Classroom tool, make more collaborative scenarios possible. The Blackboard Portal System is available on a standalone basis for independent portal technology needs, or integrated with the Blackboard Learning System as an academic portal and/or the Blackboard Transaction System as an eCommerce portal.
Contact: ***Blackboard Inc.,*** *Washington, D.C., (800) 424-9299; www.blackboard.com.*

eCollege

eCollege offers a highly modular portal from which institutions can choose the components that best fit its needs. The portal system is part of a complete program administration solution designed to support the overall quality and growth of online distance education programs. eCollege partners each institution with a client services consultant who works with it to develop an appropriate, customized system. The consultant communicates frequently with the administrator during the process, and then works with others at eCollege to deliver the necessary components.

eCollege describes its roles-based portal in terms of public-side and private-side features. Public-side features promote the institution's visibility and marketing of its online program. Public-side modules include the online course catalog, online registration, financial aid, and academic advising information. Private-side features include those that facilitate accessing and managing courses and services, such as calendars, Web access, and community-building tools. In addition, there are separate administrator tools for program management, reporting, and evaluation.
Contact: ***eCollege,*** *Denver, Colo.; (888) 884-7325; www.ecollege.com.*

SCT Luminis Platform III

SCT's Luminis Platform III (formerly the Campus Pipeline Luminis platform) is a unified digital campus solution that includes an integrated portal. The format and layout of the platform make it easy to turn almost any Web-based application into a "channel" accessible through the portal. Institutions can personalize portal content to the role, interests, and needs of individual end users, while locking desired content down, and end users can customize information channels and layout options for their campus portal pages. Specific portal features include e-mail, calendar, personal and campus announcements, administrative services, headlines, and a section for course information.

SCT works closely with each client institution to get the platform, or portal component, up and running quickly and smoothly. Its services division supports campuses that are planning and implementing the technology, first by helping the institution determine its needs and then providing implementation support as needed.
Contact: ***SCT Corp.,*** *Malvern, Pa.; (800) 223-7036; www.sct.com.*

Jenzabar Internet Campus Solution

Jenzabar Inc. launched its single sign-on Internet Campus Solution last year. The portal is a modular product: each application consists of numerous portlets (similar to pagelets); universities purchase the portlets that are appropriate for them.

Jenzabar's portal is designed to be not only a gateway, but also a personal organizer and intelligent tool. Using the portal, a student or other campus constituent can manage daily functions and work flow, track items on a daily calendar, and receive notification of campus events. Jenzabar's intelligent portal technology alerts users when an important due date is approaching. Jenzabar also offers a targeting portlet, which allows school administrators to push role-specific information to the schoo's constituents via links, text, or even banners during some predefined date range.

Jenzabar can deploy its portal quickly, sending an implementation specialist to the campus so within three days it is launched: tied to back-end systems with Internet Campus and all portlet modules installed. On the third day, the specialist provides train-the-trainer services. Faculty members can begin building courses on the fourth or fifth day.
Contact: ***Jenzabar Inc.,*** *Cambridge, Mass.; (877) 536-0222; www.jenzabar.net.*

Corporate Headquarters: 9121 Oakdale Ave. Ste. 101, Chatsworth, CA 91311, www.101com.com.

Media Kits: To request Media Kits, please call 818-435-5440.

Reprints: For all editorial and advertising reprints of 100 copies or more, and digital (web-based) reprints, contact RSiCopyright 651-582-3817 or cwj@rsicopyright.com

List Rentals: For Syllabus list rentals, or to rent names from 101communications' Master Database, please contact Cathy Dodies at 215-643-8047, cdodies@101com.com or Jane Hope, 215-643-8046, jhope@101com.com.

Conferences: SIGS/ 101 Conferences and TechMentor Conferences contact Al Tiano, Sales Manager, 818-734-1520 ext. 190, atiano@101com.com. The Data Warehousing Institute contact Diane Smith, Exhibit Sales, 206-246-5059, ext. 108, dsmith @dw-institute.com; Denelle Hanlon, Publication and Sponsorship Sales, 206-246-5059, ext. 102, dhanlon@dw-institute.com. FCW Events and Conferences contact Lucy Cooley, Events Director, 703-876-5081, lcooley@101com.com.

© 2003 by 101communications LLC. All rights reserved. Reproductions in whole or part prohibited except by written permission. Mail requests to Mary Grush, Syllabus, 101 First Street, #605, Los Altos, CA 94022. The information in this magazine has not undergone any formal testing by 101communications LLC and is distributed without any warranty expressed or implied. Implementation or use of any information contained herein is the reader's sole responsibility. While the information has been reviewed for accuracy, there is no guarantee that the same or similar results may be achieved in all environments. Technical inaccuracies may result from printing errors, new developments in the industry and/or changes or enhancements to either hardware or software components. We assume no liability for unsolicited materials. Mention of products and services is for informational purposes only and constitutes neither a recommendation nor an endorsem ent by the publisher. Syllabus Press®, Syllabus®, SyllabusWeb, and the Syllabus logo are registered trademarks of 101communications LLC. All other trademarks mentioned belong to their respective owners.

Syllabus (ISSN 1089-5914) is published monthly by 101communications LLC, 9121 Oakdale Avenue, Ste. 101, Chatsworth, CA 91311. Periodicals postage paid at Chatsworth, CA, and additional mailing offices. Subscription rates: $24/year United States and Canada, $75/year International. **Subscription Inquiries, back issues requests and address changes:** Mail to: Syllabus, 2104 Harvell Circle, Bellevue, NE 68005 or call 866-293-3194 for U.S. and Canada, 402-293-6851 for International, fax 402-293-0741, or e-mail SYL@bellevue.com. Canada Post International Publication Mail (Canadian Distribution Sales Agreement #IPM40039410). **POSTMASTER:** Send address changes to Syllabus, 2104 Harvell Circle, Bellevue, NE 68005. Printed in U.S.A.

ADVERTISING SALES

Mark Sande, Publisher
818-435-5426 phone
818-734-1522 fax
msande@101com.com

Tom Hernandez
Associate Publisher
949-265-1561 phone
949-265-1528 fax
thernandez@101com.com

Paul Zampitella
Eastern Sales Manager
508-875-6644 ext.17 phone
508-875-6633 fax
pzampitella@syllabus.com

PRODUCTION

Taura Scott
Production Coordinator
818-734-1520 ext.212 phone
818-734-1528 fax
taurascott@101com.com

CONFERENCES

Al Tiano
Conference Sales Director
818-435-5490
818-734-1529 fax
atiano@101com.com

Anne Morris
Sales Manager
818-734-1520 ext.219 phone
818-734-1529 fax
amorris@101com.com

AD INDEX

COMPANY	PAGE	PHONE AND URL
CDW Government Inc.	8, 9	(888) 239-7282 www.cdwg.com
Gateway	C4	(888) 888-0795 www.gateway.com
Hewlett-Packard Co.	C2,C3	(800) 727-2472 www.hp.com/go/publicsector
IBM Corp.	15	(800) 222-6426 www.ibm.com
SAS	5	(919) 677-8000 www.sas.com
SCT Corp.	6	(800) 223-7036 ext. 5246 www.sct.com
Syllabus2003	19	(800) 795-5228 www.syllabus.com
TechMentor Conference & Exhibition	23	(800) 280-6218 www.techmentorevents.com/sandiego
The Data Warehousing Institute	27	(206) 246-5059 www.dw-institute.com

This index is provided as a service. The publisher assumes no liability for errors or omissions.

EDITORIAL INDEX

COMPANY/ORGANIZATION	PAGE	URL
Amazon.com	17, 32	www.amazon.com
Blackboard Inc.	37, 38, 39	www.blackboard.com
Datatel Inc.	20	www.datatel.com
eCollege	39	www.ecollege.com
ePlus Inc.	36, 41	www.eplus.com
Google.com	25	www.google.com
IBM Corp.	7	www.ibm.com
Jenzabar Inc.	33, 34, 39	www.jenzabar.net
Microsoft Corp.	7, 8	www.microsoft.com
M-Tech Information Technology Inc.	42	www.psynch.com
Oracle Corp.	31, 34, 35, 45	www.oracle.com
PeopleSoft Inc.	20, 21, 38	www.peoplesoft.com
PKWARE Inc.	35	www.pkware.com
SCT Corp.	30, 31,	www.sct.com
The SCO Group	7	www.sco.com
Timecruiser Computing Corp.	38, 39	www.timecruiser.com
WebAIM	28	http://webaim.org
WebCT	31	www.webct.com

COLLEGE/UNIVERSITY	PAGE	URL
Carnegie Mellon University	42	www.cmu.edu
Copiah-Lincoln Community College	33. 34	www.colin.cc.ms.us
Creighton University	35	www.creighton.edu
Emory University	36, 41	www.emory.edu
Penn State University	11, 12, 13, 14	www.psu.edu
Rochester Institute of Technology	28, 34, 35, 36	www.rit.edu
University of Hawaii	30, 31, 32	www.hawaii.edu
University of Washington	28	www.washington.edu

Case Studies, *continued from page 36*

purchasing staff of large volumes of requisition-related phone inquiries.

Easy Online Sourcing

At the heart of the success of Emory's eProcurement system is the time-saving online shopping experience that is part and parcel of the whole package. All stock products can be researched from users' desktops, eliminating tedious searches and comparisons of traditional business directories or paper catalogs. Approved vendors are listed in pull-down menus for faster sourcing. All items are at users' fingertips.

For computer hardware and peripherals, the online listings include consortium pricing from organizations such as the Western States Contracting Alliance (WSCA), the Educational and Institutional Cooperative (E&I), and the Atlanta Regional Consortium of Higher Education (ARCHE), as well as special pricing negotiated for Emory by ePlus Technology, an ePlus subsidiary and national IT reseller.

For the non-stock items frequently desired by Emory's research facilities and medical centers, users can submit requisitions listing product descriptions rather than catalog numbers and then check an option titled "Other Source" that flags the request for special attention. Once the order has been vetted by all reviewers, it enters a queue for handling by one of Emory's buyers. The buyer in turn searches for the item or initiates a Request for Quotation to complete the purchase.

In this way, purchasers of non-standard items still reap the benefits of automated approval, including eliminating the risk that out-of-the-ordinary requests will slip through the cracks. This system also enables Emory's purchasing department to keep all requisitions and purchases in a central database for easy access and analysis.

Paving the Way

Emory selected Procure+ because of its flexibility to adapt to the imperatives of university purchasing without modifying existing processes or ignoring the huge volume of exceptions inherent in a university environment. By working with ePlus on customizations, Emory has essentially paved the way for other universities interested in transitioning to paperless procurement.

Rex Hardaway (purrdh@pur.emory.edu), is director of Procurement and Material Services, Emory University.

Trends, *continued from page 8*

keyboard on my primary computer (a Mac G4) because it's just faster for me.

TabletPCs are particularly interesting in the classroom from a faculty perspective. Why? Because you can not only project your PowerPoint slides, but you can write on them, highlighting in real time the things you want to emphasize. This was always a feature in PowerPoint, but you had to "write" using the mouse. That is coordination most of us fail at miserably. The pen, in this instance, is mightier than the mouse.

If you teach with images, slides of anatomical structures in biology for example, it's awfully nice to be able to import the image into Journal and mark it up with a pen with your own notes. Similarly, for those who teach math, you know creating little GIFs to represent mathematical notation on your slides and on Web pages is a royal pain. The overhead projector never looked better in this instance. The TabletPC connected to a video projector gives you the flexibility of a graphics tablet integrated into your PC applications. That can be quite useful.

In a future column I'll let you know how some of the departments into which we've seeded TabletPCs responded. Is it the next "big thing" in personal computing? It's too early to tell and we're in the first generation of a new technology so things are changing fast. Does it hold promise? Yes. Stay tuned.

Phil Long, Ph.D. (longpd@mindspring.com) is senior strategist for the Academic Computing Enterprise at MIT. He is also a senior associate for the TLT Group of the AAHE.

Reflections, *continued from page 42*

application that needs data must figure out where to get the data and it must know the interface to that data. Chances are, the interface to each data source will be different and will frequently change. If an application needs to update a data element, it must update it in all the places the data element exists, or must know which one to update so that all are eventually in synch. In an application-to-hub-to-application model, all requests for data and the updating of data are made to a common hub. The interface to the hub is always the same and it changes infrequently. The hub is responsible for updating data elements, keeping them in synch.

Start Building Profiles

Now that you understand your data, start understanding your users. What are the needs of departmental managers, tenured faculty, football players, and so forth? A profile is a database that contains the characteristics of different constituencies. Your portal will have to build customized pages based on profiles of each constituency, but even before you have a portal, knowing your users will help you deliver better IT services to them.

Authentication

Plan for single sign-on. Reduce the number of different ways users can authenticate. Install a password synchronization program such as P-Synch (www.psynch. com). Consider PKI, electronic signatures, and biometrics. Allow temporary authentication by giving outside users an ID and password—your system will recognize these outsiders when they return and will steer them to the most appropriate data.

Your university and your users need the cutting-edge services a portal can provide. Planning is always essential before you take a whack at a portal or a tree. Having a collection of sharp tools ready will be useful even if the tree falls over or you decide to hang a hammock on it rather than cutting it down.

Howard Strauss (howard@princeton.edu) is the manager of technology strategy and outreach at Princeton University.

Howard Strauss

REFLECTIONS

ANOTHER LOOK AT EDUCATION TECHNOLOGY

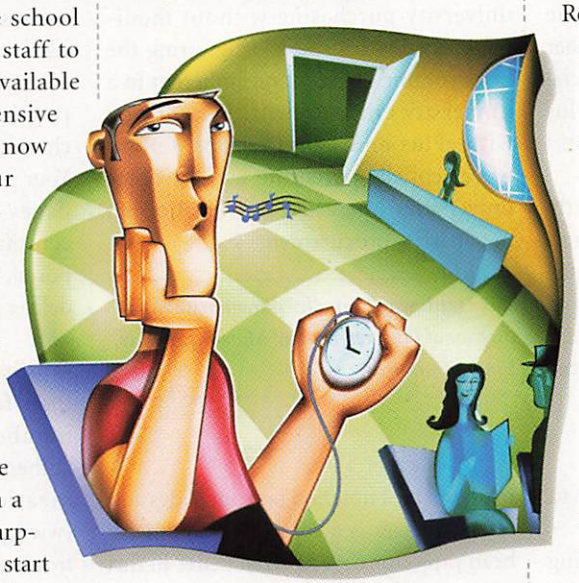
What To Do Until Your Portal Arrives

Building an enterprise portal is an expensive, time-consuming, culture-wrenching endeavor. Despite these difficulties, it's essential that all colleges and universities build one as soon as possible. In the long run an enterprise portal will save a university a great deal of money and increase the effectiveness of the entire school community. If the money or staff to start a portal project is not available today, there are some inexpensive steps that can be taken right now that will make building your portal much easier when you can afford to get it going. Each of these steps will provide your users and your IT staff immediate benefits—even if you never build a portal.

Planning

Abraham Lincoln said that if he had eight hours to chop down a tree, he'd spend the first six sharpening his ax. Even if you can't start building a portal in the near future, start planning now. A portal is a new concept. It will take users a long time to get used to the radical ideas of user-centric Web pages, shared university data, and users that are empowered to manage their own information. It took about 60 years to realize that sitting in a thin aluminum tube moving 600 miles per hour six miles above the Earth's surface was a good way to get from Washington to Paris. Portals will probably be accepted more quickly. By having your portal team in place and having a comprehensive portal plan ready you'll be able to move quickly as soon as culture and finances allow the start of your portal project.

Your portal planning must include high-level commitment, user involvement, defined sponsors and stakeholders, and the goals for your project—including having a university-wide portal with single sign-on.



Define Your Audience

Determine who uses your home page—students, faculty, staff, prospective students, visiting scholars, parents of students, and others—and how each group uses it. Once you know who your audience is and what they want, rebuild your home page with appropriate links for each different constituency. Carnegie Mellon University (www.cmu.edu) has special links on its home page for prospective students, faculty visitors, researchers, alumni, and many others. Each of these links takes a visitor to a Web page tailored to that constituency. It's not a portal, but it is a vast improvement over a typical home page. Understanding that different groups of users need different information from the Web and learning what those differences are is essential for building your portal.

Build Portal-Like Pages

Real portals have information in user-centric channels. Channels are hard to create and are best left for when you actually build a portal. But you should build role-specific, constituency Web pages now. Your library Web pages, for example, are probably built for a general audience. How would they look if only undergraduates, faculty, or staff used them? If you think that everyone wants identical Web pages from the library, Chemistry department, and so forth, you need to get out of your office and discover what's really going on. When you build your portal, you'll be ready to change these role-specific pages into portal channels.

Ownership and Interfaces

Redundant data may be a necessary evil, but if an employee name is kept in 37 different databases, which one is the authority for the name? If the name changes in one place, will it get changed in all the others? A university-wide data dictionary needs to be built and the ownership and attributes of every data element needs to be assigned.

Application-to-application interfaces must be replaced with application-to-hub-to-application interfaces. In an application-to-application interface, an

continued on page 41

Illustrated by Peter Lacalamita

© 2003 Hewlett-Packard Development Company, L.P.

If black & white is so engaging, then why don't they make highlighters in gray?

Black and white blends in—color gets you noticed. It's a simple, colorful fact. So it just stands to reason that if you use HP color in your school's documents, key points will draw attention to themselves. People take notice of your work, which in turn highlights how clever you are.

To find out more about the HP Business Inkjet 2280 or learn other ways HP color can make your school shine, visit www.hp.com/go/pscolorad6.

invent

Higher Education Meets Thoughtful Innovation

Gateway Advanced Presentation Technologies for the high-tech classroom.

The ultimate classroom experience begins with the Gateway® Tablet PC and Wireless Digital projector. A stunning blend of traditional teaching methods and cutting-edge innovation, you can write notes on your Tablet PC, which are then displayed on the presentation screen. And if there's another wireless laptop in the class, you can even hand control of the projector over to one of your students. Wireless accessibility and glitch-free connectivity – the future of education is now.

Limited Time Offer

$2099 $200 off list price[6]

Gateway® Tablet PC

Intel® Centrino™ Mobile Technology, featuring[1]

- Intel® Pentium® M processor ULV 1.0GHz
- 256MB DDR SDRAM expandable to 1024MB
- 40GB hard drive[2]
- Microsoft® Windows® XP Professional Tablet Edition
- 12.1" XGA TFT Display and Protective Cover
- Integrated V.92 56K Modem[3]
- Integrated 10/100 Ethernet
- Integrated 802.11b Wireless Networking
- Value Service Plan[4] – 1-Yr. Parts/Labor/No On-site/1-Yr. Technical Support
- Includes: 2 Digitizer Pens, Stand and Mobile Keyboard and Touchpad

$1099 Gateway™ Projector 205

- Projector Model 205 with SVGA resolution featuring DLP™ technology and DCDi™ by Faroudja
- 1100 market comparable lumens (1000 ANSI lumens)/1100:1 contrast ratio
- AC power cable, VGA cable, S-Video cable, VGA-Component cable, Composite cable, Remote Control with Laser Pointer, (2) batteries, soft carrying case and user's guide
- RGB, composite, S-Video, component (YPbPr, YCbCr), USB
- Dimensions: 9.8" x 6.7" x 2.2" (W x D x H), approximate weight 3.5 lbs.[5]
- Value Service Plan[4] – 2-Yr. Parts/Labor/Mail-in Service/Tech Support/90-day lamp limited warranty

$299 Wireless Presentation Player

Give your presentations wirelessly

- Multiple Presentation Options – remote control, upload presentation, wired or wireless connection
- Support for display resolutions up to 1024 x 768 with 24-bit color
- 802.11b wireless connection
- Up to 164 feet indoor wireless range
- 32MB of non-Volatile memory (upload your PowerPoint Presentation into the Player and use without a PC)
- Infrared Remote Control with built-in laser pointer
- This device works on any RGB device (Plasma, Monitor, etc.)

intel inside centrino™ MOBILE TECHNOLOGY

| 888-888-0795 | www.gateway.com/work/ed | Gateway

Gateway recommends Microsoft® Windows® XP Professional for Education.

All offers subject to change without notice or obligation and may not be available through all sales channels. Prices exclude shipping and handling. Applicable taxes extra. Not responsible for typographical errors. [1]Wireless connectivity and some features may require you to purchase additional software, services or external hardware. Availability of public wireless LAN access points limited. System performance, battery life, wireless performance and functionality will vary depending on your specific hardware and software configurations. [2]Hard drive accessible capacity varies; GB = 1 billion bytes. [3]Maximum data transfer rate dependent on multiple variables. [4]Limited warranties and service agreements apply; visit gateway.com or call 1-800-846-2000 for a free copy. May not be available in all states. [5]Weight varies with options. [6]Limited time offer available to educational institutions only. Copyright ©2003 Gateway, Inc. All rights reserved. Gateway Terms and Conditions of Sale apply. Gateway.com and Gateway Country Stores, LLC, are separate legal entities. Gateway and the Black and White Spot Design are trademarks or registered trademarks of Gateway, Inc. in the U.S. and other countries. Intel, Intel Centrino, Intel Inside, the Intel Centrino logo, and the Intel Inside logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation. All other brands and product names are trademarks or registered trademarks of their respective companies. Ad Code: 113079